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SERIES PS300

HIGH VOLTAGE POWER SUPPLIES

MODEL PS310
MODEL PS325
MODEL PS350

Stanford Research Systems

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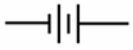
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Symbols you may find on SRS products.

Symbol	Description
	Alternating current
	Caution - risk of electric shock
	Frame or chassis terminal
	Caution - refer to accompanying documents
	Earth (ground) terminal
	Battery
	Fuse
	On (supply)
	Off (supply)

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SAFETY AND PREPARATION FOR USE

************WARNING ************

This unit contains hazardous high voltages. Please make certain that the high voltage is completely discharged before removing the high voltage cable. High voltage cables can store charge if they are disconnected from the supply while the high voltage is on. The charge on the cable can cause injury or damage even after the cable is disconnected from the unit.

Do not change the high voltage polarity unless the power is off.

*************CAUTION ************

This instrument may be damaged if operated with the LINE VOLTAGE SELECTOR set for the wrong AC line voltage or if the wrong fuse is installed.

Line Voltage Section

The PS300 series operates from 100, 120, 220 or 240 Volts nominal AC power source with a line frequency of 50 or 60 Hz. Before connecting the power cord to a power source, verify that the LINE VOLTAGE SELECTOR card, located in the rear panel fuse holder, is set so the correct AC input voltage is visible.

Conversion to other AC input voltages requires a change in the fuse holder voltage card position and fuse value. Disconnect the power cord, open the fuse holder cover door, and rotate the fuse-pull lever to remove the fuse. Remove the small printed circuit board. Select the operating voltage by orienting the printed circuit board. Press the circuit board firmly into its slot, so the desired voltage is visible. Rotate the fuse-pull lever back into its normal position. Insert the correct fuse into the fuse holder.

Line Fuse

Verify that the correct line fuse is installed before connecting the line cord. For 100 V / 120 V, use a 1 Amp fuse and for 220 V / 240 V, use a 1/2 Amp fuse.

Line Cord

The PS300 series use a detachable, three-wire power cord for connection to the power source and to a protective ground. The exposed metal parts of the instrument are connected to the outlet ground which provides protection against electrical shock. Always use an outlet which has a properly connected protective ground.

Connection to Other Instruments

The back panel BNC shields are connected to the chassis ground and the AC power source ground via the power cord. Do not apply any voltage to the shield. The high voltage SHV connector is also connected to the chassis ground and CANNOT be floated away from ground.

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SERIES PS300 SPECIFICATIONS

General Information

The PS300 series are programmable precision high voltage power supplies for use in laboratory or test applications. They feature reversible polarity, excellent regulation and low output voltage ripple. The digital displays provide accurate readings of voltage and current. Also, digital entry of the current and voltage provides accurate resettability. Output voltage can be set from either the front panel, the remote analog voltage, or over the optional GPIB interface. Voltage and current signals are also available for remote monitoring.

Electrical Specifications

Model	Output Voltage	Maximum Output Current
PS310	12 to ±1250 Volts	20 mA
PS325	25 to ±2500 Volt	10 mA
PS350	50 to ±5000 Volts	5 mA

Voltage Set Accuracy	0.01% + 0.05% of full scale
Voltage Display Accuracy	V Set Accuracy ±1 Volt, typ (±2 Volt, max)
Voltage Resolution	1 Volt (set and display)
Voltage Resettability	1 Volt
Voltage Limit Range	0 to 100% of full scale
Voltage Regulation (*)	Line: 0.001% for ±10% line voltage change Load: 0.005% for 100% load change, typ
Output Ripple	< 0.0015% of full scale, Vrms, typ < 0.002% of full scale, Vrms, max
Current Limit and Trip Range	0 to 105% of full scale
Current Set accuracy	0.01% + 0.05% of full scale
Current Resolution	PS310: 10 µA PS325: 10 µA PS350: 1 µA
Current Display Accuracy	PS350: I Set Accuracy ±1 µA, typ (±2 µA, max) PS325 or PS310: Accuracy ±10 µA, typ (±20 µA, max)
Stability	0.01% per hour, < 0.03% per 8 hours
Temperature Drift	50 ppm / °C, 0° to 50° C, typ
Protection	Arc and short circuit protected; programmable voltage and current limits and current trip.

(*) Regulation specifications apply for > 0.5% (full load) or 1.0% (no load) of full scale Voltage. Below these values the unit may not regulate correctly.

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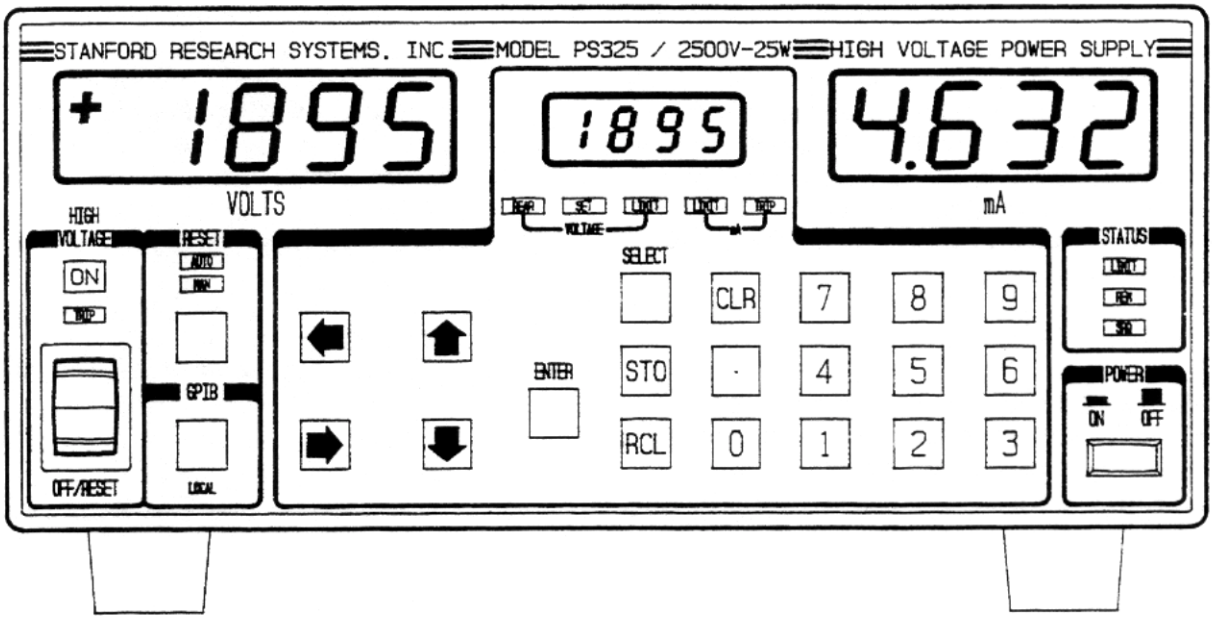
Recovery Time	12 ms for 40% step change in load current, typ	
Discharge Time	<6 sec (to < 1% of full scale voltage with no load, typ)	
Trip Response Time	<10 µs	
Minimum Trip Current	10 µA	
Monitor Outputs	Output Scale:	0 to +10 Volts for 0 to full scale output regardless of polarity
	Current Rating:	10 mA, max
	Output Impedance:	< 1 Ω
	Accuracy:	0.2% of full scale
	Update Rate:	8 Hz
External Voltage Set	Input Scale:	0 to +10 Volts for 0 to full scale output regardless of polarity
	Input Impedance:	1 MΩ
	Accuracy:	0.2% of full scale
	Update Rate:	16 Hz
	Output Slew Rate:	< 0.3 sec for 0 to full scale under full load

Mechanical Specifications

Dimensions	16.0" x 8.1" x 3.5" (L x W x H) The PS300 series are 1/2 rack width (19 inch standard rack). Optional rack mounting kits are available for single or double rack mounts. The single rack mount provides mounting for one supply. The double rack mount provides side by side mounting for 2 supplies.
Weight	8 lbs
Input power	50 watts, 100, 120, 220, 240 VAC ±10%, 50 or 60 Hz
Output High Voltage Connector	SHV male (Kings Type 1704-1 or equivalent, not included)
Mating High Voltage Connector	SHV female (Kings Type 1705-14 or equivalent, not included)
Warranty	One year parts and labor on materials and workmanship

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INSTRUMENT OVERVIEW



Front Panel Summary

Power Button

The PS300 series are turned on by depressing the POWER button. The unit always powers up with the high voltage OFF. All instrument settings are stored in nonvolatile memory and are saved when power is turned off. The model number (310, 325, or 350), firmware version, and serial number are displayed when power is turned on. If an error appears on power on, then the stored settings were lost and the default settings are used. If the default settings are desired, hold down the CLR (clear) key while turning on the power.

High Voltage Enable Switch

This is a three position switch that performs several functions. In the down position, the high voltage is off and all trips are cleared. In this position the high voltage is locked OFF and cannot be turned on by computer control. The up position is momentary and turns on the high voltage for manual or rear panel analog control. In the middle position the high voltage is enabled (but not necessarily on) and can be turned on by computer. The large red LED above the switch indicates that the high voltage is on; the yellow LED below it indicates a trip has occurred.

LED Displays

The two large displays show output voltage and current to four significant places. Polarity is displayed on the left of the voltage display. The smaller center display shows the value of the parameter that is being entered or adjusted. That parameter is indicated by the row of LEDs directly below the center display.

Select, Enter, and Clear

The SELECT key is used to choose which parameter is being displayed in the center display. The ENTER key enters the parameter shown in the center display. The clear (CLR) key erases the value in the middle display and recalls the last value that was entered. To adjust a value, the SELECT key is pressed until the appropriate LED is lit. When the value is being changed, that LED will flash to indicate that the value in the center display is not the current unit setting. If an incorrect value is entered, press CLR (clear) to start over. When the desired value is in the center display, pressing the ENTER key updates the unit's actual setting and stops the LED's flashing.

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Numeric and Cursor Keys

All parameters may be adjusted using the cursor or numeric keys. When using the cursors, the digit being adjusted in the center display will flash. The UP and DOWN keys increment and decrement the digit. The LEFT and RIGHT keys select the flashing digit. When using direct numerical entry, simply press the number and decimal point keys until the desired value appears on the center display. Note that the current is specified in mA.

Instrument Status

Three LED's indicate the instrument's status. The LIMIT LED is on when the unit is in current limit. REM is on when the front panel is locked out. SRQ is on when a GPIB service request is pending.

Other Keys

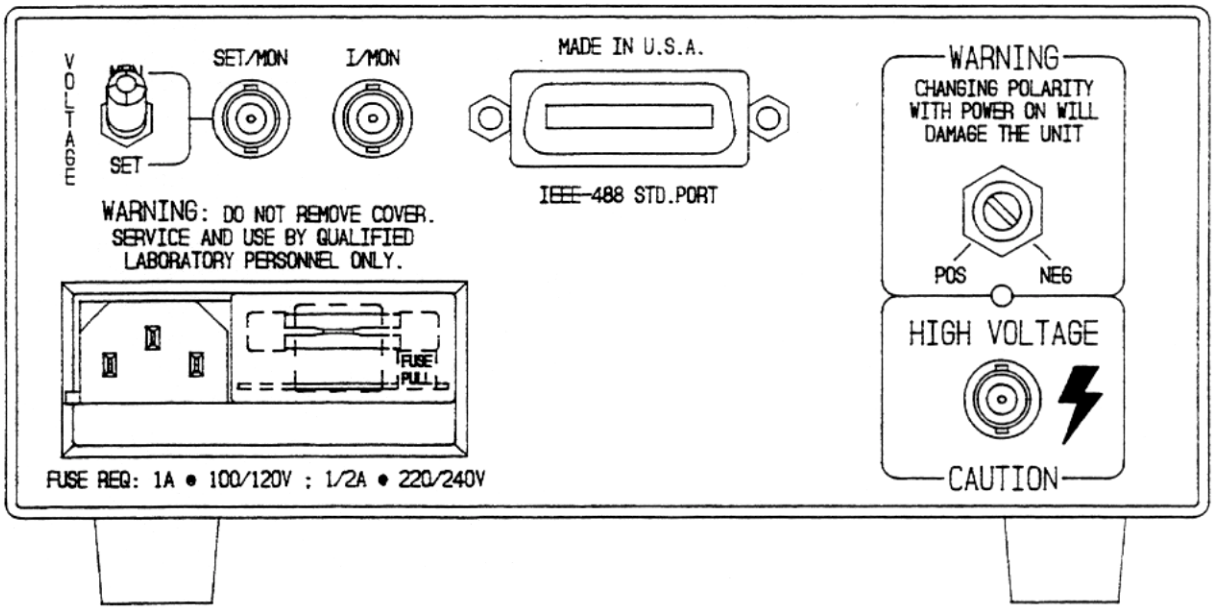
RESET sets the reset mode to either AUTO or MAN (manual).

GPIB displays the GPIB address in the center display so it can be adjusted. It is also the LOCAL key when the unit is in the remote mode.

Store and Recall

STO (store) and RCL (recall) allow up to 9 complete instrument settings to be saved in nonvolatile memory. RCL 0 recalls the default settings.

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Rear Panel Summary

Power Entry Module

The power entry module is used to fuse the line, select the line voltage, and block high frequency noise from entering or exiting the unit. Refer to the first page of the manual for instructions on selecting the correct line voltage and fuse.

High Voltage Output Connector

WARNING: This unit contains hazardous voltages. Please make certain that the high voltage is completely discharged before removing or connecting the high voltage cable. High voltage cables can store charge if they are disconnected from the supply while high voltage is present which can cause injury or damage the unit.

The high voltage output connector is an SHV male connector (Kings type 1704-1). Please make certain that the high voltage is completely discharged before changing the cable.

A 10 feet SHV-SHV or SHV-MHV cable is available from SRS.

High Voltage Polarity Selector

WARNING: The unit must be turned off and the high voltage should be completely discharged before reversing the polarity. Failure to do this can cause injury or damage the unit.

Polarity is indicated by the screwdriver slot on the polarity switch as well as on the front panel's voltage display. To reverse the polarity, turn the unit off and allow the high voltage to completely discharge. Then turn the polarity switch with a large flathead screwdriver (clockwise for + to - and counterclockwise for - to +).

Analog Outputs

The two BNC's provide voltage and current monitor signals, or an external voltage set and current monitor. When the voltage select switch is in the MON (monitor) position, both are 0 to +10 Volt outputs corresponding to 0 to full scale. When the voltage select switch is in the SET position, the current signal acts the same, but the voltage BNC is an input, setting the the high voltage over the same scale. When the switch is in the SET position, the REAR LED on the front panel is lit, indicating that the high voltage is under analog control and cannot be adjusted from the keypad. All signals are positive voltages, independent of output voltage polarity.

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IEEE-488 Std Port (optional)

The 24 pin IEEE-488 (GPIB) connector allows computer control of PS300 series supplies. The address is set from the front panel using the GPIB key.

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GUIDE TO OPERATION

Setting Output Voltage

The voltage set can be changed with the high voltage on or off.

To set the high voltage output, press the SELECT key until the VOLTAGE SET LED is lit. The present value of the set voltage will be displayed in the center window. To change the value, enter the desired voltage by either the numeric or cursor keys. After the new value has been entered into the center display, press ENTER to update the output voltage. The VOLTAGE SET LED will flash until ENTER or CLR is pressed to remind you that the displayed value is not the actual programmed value. If an 'Err2' message appears (illegal parameter entered), check the voltage limit to see that it is greater than or equal to the desired set voltage. Use the CLR key to clear any error message.

If the REAR LED is lit, the high voltage is programmed from the analog set input on the rear panel. In this mode, when the center display is showing VOLTAGE SET, the display is the present programmed value of the high voltage and cannot be adjusted from the front panel.

Setting Voltage Limit

The voltage limit is a protection feature to prevent the output voltage from being set too high or overshooting because of dramatic load changes. The output voltage cannot be set higher than the voltage limit. In addition, if the output ever exceeds the limit by more than 10% of full scale, the unit trips and the high voltage is disabled. If this occurs, a 'VTRP'(voltage trip) message appears in the middle display.

After a trip it is not necessary to clear the trip before turning the high voltage back on. If it is necessary to change a parameter before turning the high voltage back on, pressing CLR or putting the high voltage switch in the off position will clear the trip.

To set the voltage limit, press the SELECT key until the VOLTAGE LIMIT LED is lit. The present value of the voltage limit is displayed in the center window. Change it with either the numeric or cursor keys and press ENTER to update the actual limit value. If an 'Err2' message appears (illegal parameter entered), check to see that the output voltage is less than or equal to the voltage limit.

Setting Current Limit

Current limiting varies the output voltage to limit the output current to less than or equal to the programmed current limit value. When the unit is current limited, the LIMIT LED is lit.

The current limit is set in the same fashion as the voltage limit, by SELECTing the present value on the center window, changing it and then ENTERing the new value.

Setting Current Trip

The current trip shuts off the high voltage when the output current exceeds the trip value. The current trip value is set in the same fashion as the voltage and current limits. After a current trip occurs, the 'ITRP' (current trip) message will appear in the middle display. Current trips are cleared in the same fashion as voltage trips.

Primary Trip

A PTRP (primary trip) message will occur if the current through the primary side of the high voltage transformer and the switching MOSFET's exceeds about 5.3 Amps. This feature is included to protect the transformer and FET's. The trip level is not user programmable and may be cleared in the same manner as the voltage and current trips. If repeated PTRP's occur, see the troubleshooting section.

Reset Mode

The reset mode determines how the unit responds after a voltage or current trip.

MAN (manual) Mode: The high voltage remains off after a trip and requires that the operator turn it back on.

AUTO (automatic) Mode: The unit waits until the output voltage has fallen to 1/50 of its full scale value and then turns the high voltage back on. This is useful when dealing with loads that occasionally short circuit but recover after removing the high voltage.

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Store and Recall

STO (store) and RCL (recall) allow up to 9 complete instrument setups to be saved. To store a setup, press the STO key, followed by a number (1-9) and then the ENTER key. To recall a setup, press the RCL key, followed by a number (0-9) and then the ENTER key. RCL 0 returns the setup to the factory default. Whenever a setup is recalled, the high voltage is turned off for safety. If an 'Err3' (recall error) occurs, then that stored setup was lost due to a memory error and must be re-entered.

Error Messages

The following error messages may appear in the center display. The CLR key clears the errors.

Err1	Memory Error Power on memory error of the unit's last setup. Default setup is recalled.
Err2	Illegal Parameter Entered.
Err3	Stored Value Recall Error The stored setup (from STO and RCL) was lost.
Err4	Illegal Storage Address STO 0 is reserved for default settings.
Err5	No GPIB Interface The unit does not have the GPIB option so the GPIB address cannot be set.
Err6	Syntax error over GPIB.
Err7	Illegal parameter entered over GPIB. Parameter entered is out of range.
Err 8	GPIB Output queue full.

Analog Programming and Monitor

The rear panel voltage select switch determines whether the output voltage is set from the front panel or from the rear panel voltage input. If the switch is in the MON (monitor) position, the front panel will set the voltage. If the switch is in the SET position, the rear panel voltage will set the output voltage. When the switch is in the SET position, the REAR (rear panel) LED is lit and the output voltage being set by the rear panel is displayed in the middle display when it is showing VOLTAGE SET. The voltage limit is still active and does not allow the rear panel voltage to set the output above the voltage limit. If the rear panel voltage is too high, the output voltage will stop at the limit voltage.

Voltage Monitor/Set: When the Analog Programming switch is in the MONITOR position, the VOLTAGE BNC is a monitor output providing 0 to +10 Volts for 0 to full scale output regardless of polarity. When the switch is in the SET position, the BNC becomes an input over the same range. An input of 0 to +10 Volts will program the high voltage from 0 to full scale, regardless of polarity.

Current Monitor: This provides 0 to +10 Volts out for 0 to full scale output regardless of the output polarity.

If the switch position is changed while the high voltage is on, the unit will shut the high voltage off.

Default Setup

The factory default setup can be recalled by pressing the CLR key while turning the unit on or recalling setup 0 (RCL 0). The default setup is also recalled after a power on memory error (ERR 1).

The default setups are shown below.

PS310	Voltage Set	0 V
	Voltage Limit	1250 V
	Current Limit	21 mA
	Current Trip	21 mA
	Reset Mode	MAN
	High Voltage	OFF
	GPIB Addr	14 (if applicable)
PS325	Voltage Set	0 V
	Voltage Limit	2500 V
	Current Limit	10.5 mA
	Current Trip	10.5 mA
	Reset Mode	MAN
	High Voltage	OFF
	GPIB Addr	14 (if applicable)
PS350	Voltage Set	0 V
	Voltage Limit	5000 V
	Current Limit	5.25 mA
	Current Trip	5.25 mA
	Reset Mode	MAN
	High Voltage	OFF
	GPIB Addr	14 (if applicable)

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GUIDE TO PROGRAMMING

Remote Programming

The PS300 series High Voltage Power Supplies may be remotely programmed via the GPIB (IEEE-488) interface. Any computer supporting this interface may be used to program the PS300.

The PS300 supports the IEEE-488.1 (1978) interface standard. Additionally, it also supports the required common commands of the IEEE-488.2 (1987) Standard. Before attempting to communicate with the PS300 over the GPIB interface, the PS300's device address must be set. The address is set from the front panel by pressing the GPIB key and using the up and down arrow keys to set the address to any number between 0 and 30. Pressing the ENTER key then sets the selection.

Command Syntax

Communications with the PS300 use ASCII characters. Commands may be in either UPPER or lower case and may contain any number of embedded space characters.

A command to the PS300 consists of a four character command mnemonic, arguments if necessary, and a command terminator. The terminator is a linefeed <lf> or EOI. No command processing occurs until a command terminator is received. Command mnemonics beginning with an asterisk "*" are IEEE-488.2 (1987) defined common commands. Commands may require one or more parameters. Multiple parameters are separated by commas ",".

Multiple commands may be sent on one command line by separating them by semicolons ";". The difference between sending several commands on the same line and sending several independent commands is when a command line is parsed and executed, the entire line is executed before any other device action proceeds. This allows synchronization to be achieved using the synchronization commands.

There is no necessity to wait between commands. The PS300 has a 256 character input buffer and processes commands in the order received. If the buffer fills up, the PS300 will hold off handshaking on the GPIB. Similarly, the PS300 has a 256 character output buffer to store output until the host computer is ready to receive it. If the output buffer fills up, it is cleared and an error reported.

The present value of a particular parameter may be determined by querying the PS300 for its value. A query is formed by appending a question mark "?" to the command mnemonic and omitting the desired parameter from the command. If multiple queries are sent on one command line (separated by semicolons, of course), the answers will be returned in a single response line with the individual responses separated by semicolons. The default response terminator that the PS300 sends with any answer to a query is a linefeed plus EOI. All commands return integer results except as noted in individual command descriptions.

Examples:

VSET1.0E3<lf>	sets VSET to 1000 V
VSET?<lf>	queries the value of VSET
*IDN? <lf>	queries the device identification (query, no parameters)
VSET100.0;VSET? <lf>	sets voltage to 100 V and queries the voltage

Detailed Command List

The four letter mnemonic in each command sequence specifies the command. The rest of the sequence consists of parameters. Multiple parameters are separated by commas. Commands that may be queried have a question mark ? in parentheses (?) after the mnemonic. Commands that may ONLY be queried have a ? after the mnemonic. Commands that MAY NOT be queried have no?.

Output Control Commands

HVOF

The HVOF command turns the high voltage OFF.

HVON

The HVON command turns the high voltage ON provided that the front panel high voltage switch is not in the OFF position. If the switch is in the OFF position, the high voltage is left off and an

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execution error is reported. This command also automatically clears any voltage or current trips.

IOUT?

The IOUT? query returns the actual output current. This is the same value as shown on the front panel meter. Note: As with the front panel meters, this value takes about a second to stabilize after a change in current.

VOUT?

The VOUT? query returns the actual output voltage. This is the same voltage as shown on the front panel meter. The value returned is a floating point value and includes the sign of the output voltage. Note: As with the front panel meters, this value takes about a second to stabilize after a change in voltage.

Setting Control Commands

***RCL i**

The *RCL command recalls stored setting i. Setting 0 recalls the default settings. If the stored setting is corrupted, an error is returned.

***SAV i**

The *SAV command stores the present setup as setting i. i may range from 1 to 9.

ILIM(?) x

The ILIM command sets the value of the current limit to x. The value x is a floating point value with the units of Amps (e.g. 1 mA = 1E-3). The ILIM? query returns the current limit setting.

ITRP(?) x

The ITRP command sets the value of the current trip to x. The value x is a floating point value with the units of Amps (e.g. 1 mA = 1E-3). The ITRP? query returns the current trip setting.

SMOD?

The SMOD? query returns the VSET setting mode. The value 0 means that the voltage value is controlled by the front panel setting, while the value 1 indicates that the output is controlled by the rear panel voltage control input. Note that the setting mode may only be changed by setting the rear panel switch.

TCLR

The TCLR command clears any voltage or current trips.

TMOD(?) i

The TMOD command sets the trip reset mode. The value i = 0 sets manual trip reset, while the value i = 1 sets the trip reset mode to auto.

VLIM(?) x

The VLIM command sets the value of the voltage limit to x where x is the value in Volts. The sign of value x MUST match the PS300's polarity setting. The VLIM? query returns the present VLIM setting. As with front panel control, the VLIM value must be greater than or equal to the VSET value or an execution error will be returned.

VSET(?) x

The VSET command sets the value of the voltage set to x if front panel control is enabled. If rear panel control is enabled, an error is returned. The value x is a number in the units of Volts and the sign of the number MUST match the PS300's polarity setting. The VSET? query returns the current VSET value. As with front panel control, the VSET value must be less than or equal to to VLIM value or an execution error will be returned.

Interface Control Command

***RST**

The *RST common command resets the PS300 to its default configurations. It is the same as holding down "CLR " at power on.

***IDN?**

The *IDN common query returns the PS300's device configuration. This string is in the format: StanfordResearchSystems,PS3XX,serial number, version number, where XX is the particular model number, "serial number" is the serial number of the particular unit, and "version number" is the 3 digit firmware version number.

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Status Reporting Commands

***CLS**

The *CLS common command clears all status registers

***ESE (?) j**

The *ESE common command sets the standard status byte enable register. The parameter j is the decimal value that the enable register is to be set to.

***ESR? {j}**

The *ESR common command reads the value of the standard status register. If the parameter j is present the value of bit j is returned. Reading this register will clear it. Reading bit j will clear bit j only.

***PSC (?) j**

The *PSC common command sets the value of the power-on status clear bit. If j = 1, the power on status clear bit is set and all status registers and enable registers are cleared on power up. If j = 0, the bit is cleared and the status enable registers maintain their values at power down. This allows the production of a service request at power up, etc.

***SRE (?) j**

The *SRE common command sets the value of the serial poll enable register. The parameter j is the decimal value that the register is to be set to.

***STB? {j}**

The *STB? common query reads the value of the serial poll byte. If the parameter j is present the value of bit j is returned. Reading this register has no effect on its value. It is just the summary of the other status registers.

Status Reporting

The PS300 reports on its status by means of two status bytes: the serial poll byte, and the standard status byte.

On power up, the PS300 may either clear all of its status enable registers or maintain them in the state they were in during power down. The action taken is set by the *PSC command and allows things such as SRQ on power up to be produced if desired.

Serial Poll Status Byte

bit	name	usage
0	stable	This indicates that the VSET or ILIM value is stable. The value depends on whether the PS300 's in constant current or constant voltage mode.
1	v trip	This indicates that a voltage trip has occurred.
2	itrip	This indicates that a current trip has occurred.
3	ilim	This indicates that a current limit condition has occurred.
4	MAV	This indicates that the GPIB output queue is non-empty.
5	ESB	This indicates that an unmasked bit in the standard status byte has been set.
6	RQS/ MSS	SRQ BIT.
7	hvon	This indicates that the high voltage is on.

The PS300 will make a service request (SRQ) whenever one of these bits is set AND the corresponding bit in the serial poll enable register is set. Note that any status condition will produce only one SRQ even if it is never cleared. The vtrip, itrip and ilim bits are latched bits. They are set on the occurrence of the appropriate event and stay set until either the status byte is read or the *CLS command is sent. This allows one to detect if a trip condition has ever occurred. All of the other bits indicate the current states of their respective functions.

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Standard Event Status Byte

bit	name	usage
0	unused	
1	unused	
2	Query Error	set by an output queue overflow
3	Recall Err	set if a stored setting is corrupt
4	Execution Err	set by an out of range parameter, or non-completion of some command due to a condition like overload
5	Command Err	set by a command syntax error or unrecognized command.
6	URQ	set by any key press
7	PON	set by power on

This status byte is defined by IEEE-488.2 (1987) and is used primarily to report errors in commands received over the communications interfaces. The bits in this register stay set once set and are cleared by reading them or by the *CLS command. If a bit in the standard status register is set and the corresponding bit in the standard status enable register is set, then the ESB bit in the serial poll register is set.

GPIB Error Messages

The following error messages will appear on the middle display if an error occurs due to a command sent over GPIB:

Err6 Syntax Error over GPIB.

The command had an error in syntax or was unrecognizable. A syntax error could be a misspelling of a command or forgetting to include a '-' when setting a negative value for the voltage or voltage limit. This error is the same as Command Error, bit 5 of the Standard Event Status Byte.

Err7 Illegal Parameter entered over GPIB.

A parameter was set out of range, or a command could not be completed because of an overload. This error is the same as Execution Err, bit 4 of the Standard Event Status Byte.

Err8 GPIB Output Queue full.

The output queue overflowed and was cleared. This could be due to querying the unit repeatedly and not reading out all of the characters, or a problem at the recieving unit. This error is the same as Query Error, bit 2 of the Standard Event Status Byte.

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PROGRAM EXAMPLES

This section lists example programs which use the GPIB port to control the PS300. All of the programs do the same thing, only the language is different. The programs set up the PS300 to ramp the output voltage from 0 to 1000 Volts while reading the output current.

Program Example 1:
IBM PC, Microsoft BASIC, Via GPIB

This program requires the Capital Equipment Corporation GPIB card for the IBM PC. It has firmware in ROM to interface high level languages to the GPIB.

Subroutine calls in Microsoft BASIC are done to memory locations specified by the name of the subroutine. The address is relative to the segment address specified by the DEF SEG statement preceding the CALL.

In this program, the CEC card's ROM starts at C000H, the system controller's address is 21, and the PS300 is at GPIB address 23. Make sure the address in the unit is set correctly and that the HIGH VOLTAGE ENABLE switch is not OFF.

```
10 'EXAMPLE PROGRAM TO RAMP THE PS300 HV OUTPUT AND READ THE CURRENT
20 'USING IBM PC BASIC AND THE CAPITAL EQUIPMENT CORP.
30 'GPIB INTERFACE CARD
40 '
50 '
60 'SET THE PS300 GPIB ADDR=23
70 '
80 DEF SEG = &HC000                                  'BASE ADDRESS OF CEC CARD
90 INIT=0: TRANSMIT=3: SEND=9: ENTER=21              'ADDRESSES OF CEC FIRMWARE ROUTINES
100 ADDR%=21: SYS%=0                                 'CONTROLLER ADDRESS
110 PS300%=23                                        'PS300 ADDRESS
120 '
130 'STRING DEFINITIONS
140 IN$="IFC UNT UNL REN MTA LISTEN 23 SDC"          'CLEAR PS300
150 HV$="HVON"                                       'HV ENABLE
160 CR$="*RST"                                       'RESET PS300
170 IR$="IOUT?"                                      'READ CURRENT
180 VS$="VSET"                                       'SET HV OUTPUT LEVEL
190 '
200 '
210 CALL INIT(ADDR%,SYS%)                            'INIT CEC CARD
220 CALL TRANSMIT(IN$,STATUS%): GOSUB 480            'CLEAR INTERFACE
230 CALL TRANSMIT(CR$,STATUS%):GOSUB 480             'RESET PS300
240 '
250 X=0                                              'INITIAL VOLTAGE=0
260 '
270 CALL SEND(PS300%,HV$,STATUS%): GOSUB 480  'ENABLE HV
280 '
290 X = X+10                                         'INCREMENT OUTPUT BY 10V
300 PRINT "VOLTAGE  = "; X;
310 P$=VS$ + STR$(X)                                 'MAKE VSET COMMAND STRING
320 CALL SEND(PS300%,P$,STATUS%):GOSUB 480
```


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```
330'
340 CALL SEND(PS300%,IR$,STATUS%):GOSUB 480   'QUERY CURRENT
350 ANS$=SPACE$(20)                           'CLEAR RESULT STRING
360 CALL ENTER(ANS$,LENGTH%,PS300%,STATUS%):GOSUB 480       'READ CURRENT
370 N=VAL(ANS$)                               'INTO VARIABLE N
380 PRINT "   CURRENT = "; N                  'PRINT VALUE
390 '
400 IF X<1000 THEN GOTO 290                   'LOOP
410 STOP
420 '
480 'CHECK STATUS OF LAST GPIB COMMUNICATION FOR ERRORS
490 IF STATUS%=0 THEN RETURN                  'STATUS OK
500 PRINT "GPIB ERROR STATUS CODE = ";STATUS%    'ELSE ERROR
510 STOP
```


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Program Example 2:
IBM PC, Microsoft C V4.0, Via GPIB

This program requires the Capital Equipment Corporation GPIB card for the IBM PC. It has firmware in ROM to interface high level languages to the GPIB.

The header file MS-C488.H contains definitions of all of the CEC firmware routines which can be called from C. Note that the order of arguments in the calls are reversed from those used by BASIC.

To use these routines, the large model must be used. Compile with the /AL/Ze switch and link with GPIB-L.OBJ (on the CEC disk).

```
/*      Compile with >MSC program name/AL/Ze;
        link with GPIB-L.OBJ (on CEC disk)
        include MS-C488.H

        MS-C488.H defines all of the CEC firmware routines so that they
        can be called from a C program. Remember that the order of the
        arguments is REVERSED from the BASIC calls described in the manual.

        Example program to ramp the PS300 output and read the current
        using Microsoft C v4.0 (large model) and the Capital
        Equipment Corp. GPIB interface card.

        Set the PS300 for GPIB ADDR=23.
*/

#include <ms-c488.h>
#include <stdio.h>

char result[80];

main()
        {
        int i,status,ps300=23;
        int my_address=21, system_controller=0;
        char cmd[80], vstr[40];
        float n;
        float x;

        initialize(&system_controller, &my_address);        /* init GPIB controller */

        /* clear interface */
        transmit(&status, "IFC UNT UNL REN MTA LISTEN 23 SDC");
        Statcheck(status);

        /* reset PS300 */
        TxGpib(ps300,"*RST");

        x = 0;                                  /* initial output  value */

        /* enable HV */
        TxGpib(ps300,"HVON");

        while (x<1000.0)
```


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```
                do
                {
                x += 10.0;                      /* increment output voltage level */
                sprintf(vstr, "VSET %7.1f",x);  /* make VSET command string */
                TxGpib(ps300,vstr);             /* send command */

                TxGpib(ps300,"IOUT?");          /*query current */
                GetGpib(ps300);                 /* into result string */
                if (!(sscanf(result,"%f",&n)))
                      Statcheck(255);

                /* print level */
                printf ("Voltage = %f    current = %f\n",x,n);
                }
        }
/* ******************************************************* */
TxGpib(address,command)       /* transmit a command to addressed device */
int address;
char *command;
        {
        int status;
        char t_string[80];

        sprintf(t_string, "UNT UNL MTA LISTEN %d DATA '%s' 10",address,command);
        transmit(&status, t_string);
        Statcheck(status);
        }
/* ******************************************************* */
GetGpib(address)        /* get result string from addressed device */
int address;
        {
        char r_string[40], temp[80];
        int length, status;

        sprintf(r_string, "UNT UNL MLA TALK %d",address);
        transmit(&status, r_string);        /* make device a talker */
        Statcheck(status);
        strcpy(temp, "                                                  ");   /* clear result string */
        receive(&status, &length, temp);          /* get answer */
        Statcheck(status);
        strcpy(result, temp);          /* move answer into global result string */
        }
/* ******************************************************* */
Statcheck(status)               /* check GPIB status */
int status;
        {
        if (status)



                {
                printf("GPIB error: status = %d",status);
                exit();
                }
        }
```


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Program Example 3:
IBM PC, Microsoft C V4.0, Via GPIB

This program requires the National Instruments GPIB card for the IBM PC. It has firmware on board that interfaces it to high level languages.

To interface the PS300 to a PC with the National Instruments card, the interface card and drivers must be configured properly. The National Instruments card CANNOT be simply unpacked and put into your computer. The card must be configured with jumpers and switches to set the I/O address and interrupt levels. You must also run the program "IBCONF" to configure the resident GPIB driver for the card. Please refer to the National Instruments manual for additional information.

Once all the hardware and GPIB drivers are properly configured, use the IBIC program. This terminal emulation program allows you to send commands to the PS300 directly from your keyboard. If you cannot talk to the PS300 from IBIC, your programs will not run.

The header file decl.h must be included and the file should be linked with the appropriate cib*.obj.

```
/*
        Compile with >MSC program name/AL/Ze;
        Link with the appropriate cib*.obj  (on the Nat'l Inst disk)
        Include decl.h.

        Example program to set the PS325 to 1000 volts and read the
        current using Microsoft C v4.0 (large model) and the National
        instruments GPIB interface card.
*/

#include <stdio.h>
#include <stdlib.h>
#include <decl.h>

main();
        {
        int i,status,ps300;
        float x;
        char data[40];

/* get device ID for power supply */

        ps325 = ibfind("PS325")
        if (ps325<0)
                {
                printf ("Cannot find PS325; rerun IBCONF/n");
                exit(0);
                }

/* reset ps300 */
        ibwrt (ps300,"*RST",4);

/* turn on high voltage */
        ibwrt (ps300,"HVON",4);

/* set voltage to 1000 volts */
```


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```
        ibwrt (ps300, "VSET1000",8);

/* read current */
        ibwrt (ps300,"IOUT?",5);
        ibrd (ps300,data,20);

/* print answer */
        sscanf (data,"%f",&x);
        printf ("Voltage = 1000    Current = %1f/n",x);
        }
```


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TROUBLESHOOTING

Always make certain that the power entry module is set for the correct line voltage and the correct fuse is installed. The selected line voltage can be seen through the window on the power entry module. Verify that the line cord is plugged all the way into the power entry module and the power button on the front panel is pressed in.

Power on Reset

If the instrument turns on with odd combinations of LEDs on, garbled displays, or is unresponsive to the keyboard, the memory contents may have been corrupted, causing the instrument to "hang". To remedy the situation, turn the unit off and hold down the CLR key while turning the power back on. This causes the unit to initialize the memory and load the default setup.

Stuck Keys

If the center display is filled with a particular number (like 4444), or one particular message (like Err2), and the keyboard is unresponsive, check to see if a key is stuck down. If so, gently flick the stuck key back to the center of its hole.

No High Voltage

Check to make sure that the HIGH VOLTAGE LED is on. If the HIGH VOLTAGE LED is OFF, check the following.

1) Make certain you hold down the high voltage key for at least half a second. It is designed to take a fairly long keypress to avoid having the high voltage turned on accidentally by bumping into the switch.

2) Check the voltage limit and current trip levels to see that they are not too low for your load.

If the HIGH VOLTAGE LED is ON but the output voltage is zero or lower than expected, check the following.

1) Check if the LIMIT LED is on. If so, the current limit value could be too low or the load could be drawing excessive current.

2) Make sure the voltage limit is as large or larger than the desired output voltage.

3) Check the the REAR LED. If it is on, then the high voltage is being programmed by the analog set voltage input on the rear panel and not by the front panel. If so, make sure the rear panel switch is in the desired position.

Repeated Trips

Voltage Trips: This may occur if the load changes too rapidly, causing the voltage to overshoot. Try raising the voltage limit.

Current Trips: Disconnect the load and see if the unit still trips. If it works with no load, there may be a problem with the load. If it still trips, the unit may be damaged. Please contact the factory for further information.

Primary Trip: If repeated PTRP's occur, the power supply may be damaged. Please contact the factory for further information.

Rear Panel Voltage Set

If the output voltage is not correct, check the REAR LED and rear panel switch to see that they are in the SET mode. Also check that the voltage limit is higher than the desired voltage.

Front Panel Test

Hold down the ENTER key while turning on the unit to run the front panel test. After power is turned on, one segment of one numerical digit should be lit. By pressing the UP arrow key, step through all 8 segments of this digit and the following one. This verifies that all of the segment drivers are functional. On the next UP keypress, all segments and one of the single LED's should be lit. By repeatedly pressing the UP key, all of the single LED's can be turned on, one at a time. The keypad can then be tested by pressing each key and observing the key code on the display. The codes increase from top to bottom and left to right. After this test, turn the power off and restart the instrument.

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Calibration

The calibration parameters are determined by a computer aided calibration procedure after burn-in at the factory. These values are stored in the permanent memory of each unit. Because of this there are no user adjustable components to calibrate.

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CIRCUIT DESCRIPTION

Introduction

Schematics for the PS300 series supplies are shown on the following pages. They include the following: Voltage Control (page 1/11), Low voltage pre-regulator and high frequency inverter (page 2/11), Limits and Trip Circuitry (page 3/11), A/D and D/A (page 4/11), the Microprocessor (page 5/11), GPIB and Front Panel Control (page 6/11), Low Voltage Power Supplies (page 7/11), Front Panel (page 8/11), and the High Voltage Sections (page 9/11 through 11/11).

Most of the components are located on the main circuit board. The front panel and high voltage section are located on separate boards. In addition, the high voltage board is covered with an acrylic coating and enclosed in a protective box.

Voltage Control (page 1/11)

Since the output is transformer coupled, only the magnitude can be set by the primary side control circuitry. The polarity must be set in the high voltage section by a multi-pole switch. However, the sensed voltage and current vary with polarity and must be converted to a unipolar signal before they can be used to control the output. To minimize the effects of noise, the sensed voltage and current are converted to a -8.26 to +8.26 V range (-8.26 V corresponding to 0 volts out, +8.26 to full scale). This allows 13 bits of resolution from the D/A over ±10 V with a relatively large bit size of 2.5 mV.

The sensed voltage, V SENSE (coming from a resistive divider in the high voltage section) is buffered by a high input impedance differential amplifier made up of U109A, U109B and U101D. This provides a 0 to +8.26 V signal. Next the polarity is set (for positive or negative output voltages) with a programmable low offset inverter (U102, U104A and U104B) and then scaled to ±8.26 V. Next, the voltage is compared to the programmed voltage with U101B. This signal is then frequency compensated (U108, U101C, and related R's and C's) to provide an error voltage, V ERR. D104 and D107 keep the large capacitors in the frequency compensation circuitry from saturating.

The sensed current is first amplified by U105 from 0 - 250 mV to 0 to +8.26 V. Next, the polarity is set by the programmable inverter of U104C, U104D and U106. It is scaled to ±8.26 V by U107C. Then it is compared and frequency compensated at U107B, to provide I ERR.

D102 acts as a crossover between the two error signals to determine which one sets V DRIVE, the control for the output voltage. If I ERR is higher than V ERR (voltage control mode), then V ERR controls V DRIVE. However if I ERR is lower (supply is in current limit), it can pull down V DRIVE(through D102) to the appropriate level, since V ERR is isolated by R110.

Diodes D105 and D106 act to keep op amps U101C and U107B out of saturation during large load changes. This improves transient response.

Low Voltage Pre-Regulator and High Frequency Inverter (page 2/11)

High voltage is made with a high frequency DC to DC converter. It operates by driving the common tap of a step-up transformer used as an inverter, from 0 to 35 volts DC. This makes high voltage by a combination of transformation and voltage multiplication. Control is achieved by regulating the common tap.

Pre-Regulator

The common voltage is made by a combination step down pre-regulator followed by a programmable linear regulator. Q203, D203, L201 and C203 form the step down regulator and U205 is the linear regulator.

U206, an LM311 comparator, senses the voltage across U205. If it is less than 2.5 volts (determined by D204, a 2.5 volt reference), its output goes negative. This turns on Q203, allowing current to flow through L201 onto C203, raising the voltage at the input of U205. Once the voltage across U205 is greater than 2.5 volts (plus a small amount of hysteresis set by R219 and C205), U206 shuts off Q203. Current continues to flow through L201 during the off time since current can't change instantly through an inductor. This causes the voltage at pin 2 of Q203 to flyback negatively and be clamped by D203. The voltage across U205 will now decay until it is less than 2.5 volts, which begins the cycle again.

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U205, a LT1085, is a low dropout adjustable regulator which filters the output of the step down section. U207 increases the V DRIVE signal of 0-12 volts to 0-33 volts which programs the common tap of the step-up high voltage transformer.

Inverter

U201 is a LM555 timer configured as an astable multivibrator at a frequency of 40 kHz with about a 60% duty cycle. U202 and U203 split this into two phases of 20 kHz at a 30% duty cycle. U204 (SN75372) is a high current MOSFET driver for the FETs (Q201,Q202) that drive the high voltage step-up transformer (pages 9/11 through 11/11). D201 and D202 clamp excessive inductive flyback voltage.

If the primary current exceeds about 5.3 amps, R212 - R215 and U301C sense the primary side current and shut off the drive to the inverter (and hence the high voltage). They do this by activating the HV OFF line (page 3/11), which latches the high voltage off until the processor releases it. The high voltage can also be turned off by voltage or current trips and by the processor.

Limits and Trips (page 3/11)

U301 is a quad comparator that compares both the scaled output voltage and current to both the limit and trip values which are set by the processor and D/A. If a trip value is exceeded, the high voltage is shut off through the HV OFF signal and the change of status is reported to the processor. If a limit is exceeded, only the change of status is reported. The processor can also set the HV OFF line via the SHUTDOWN line.

U306 is a one-shot circuit used as a watch dog timer. Unless the microprocessor resets it every 10 ms, the one-shot times out, turning off the high voltage and forcing a system reset.

A/D's and D/A's (page 4/11)

U410 is a 12 bit digital to analog converter that is loaded 4 bits at a time from the processor. Its output current is converted to a voltage by U402B to provide a 0 to -10.00 VDC referenced from LH0070 (U406), a precision reference. U407A, U407B and U405 form a programmable low offset inverter. After scaling, the output covers a range of -10.24 to +10.24 VDC with 13 bits of resolution and 2.5 mV bits. These outputs are multiplexed to 6 sample and hold circuits that provide control voltages and outputs. Each sample and hold is refreshed every 12 ms.

U402A and U404 form an integrating, successive approximation analog to digital converter. U409 determines the input to be sampled and integrates it through R404 on to C401. Then a successive approximation 13 bit analog to digital conversion is made using the D/A converter and comparator U404. This takes about 100 µs.

Microprocessor Control (page 5/11)

The microprocessor, U501 (a Z80), is clocked at 4 MHz by X501. U502, an 8K ROM, contains the firmware and calibration constants. The 2K static RAM, U503, is backed up by a lithium battery, BT501. A power down circuit protects the RAM contents by disabling the chip-select with Q501 if a reset is asserted. The battery should have a useful life of 5 to 10 years and shouldn't need to be replaced.

U504 and U505 generate chip selects for the various input and output ports. U506 and U512 are input ports for status information, rear panel switches, and the HV ON/OFF switch on the front panel.

U509 and related parts form the power on reset circuit. During power on, it asserts a reset for about 250 ms so the supply voltages can stabilize. If the +5 V power supply dips below 4.5 V (determined by the +10.00 V reference), it asserts a reset that will last until the voltage recovers and a reset cycle has occurred. If the watch dog timer isn't updated every 10 ms, it triggers U511, which also forces a reset. During a reset, in addition to the processor being reset and the RAM being disabled, the high voltage is turned off.

GPIB and Front Panel Interface (page 6/11)

GPIB

The GPIB (IEEE-488) interface is provided by the TMS9914A controller, U601. U602 and U603 are buffers to the GPIB connector, which is connected to J602. U601 is programmed to interrupt the processor whenever there is activity addressed to the power supply.

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Front Panel Interface

The front panel has a 6 phase, multiplexed LED display and keyboard. U604 is a data bus latch for U605, a high current driver that provides the strobe signals to the front panel. Each strobe selects 2 digits and 2 or 3 LED's to be refreshed. Only one strobe is active at a time. U606 and U609 are pull down lines for the digits with 390 Ohm current limiting resistors (N601 and N602). The individual LEDs are pulled down separately by U613A-U613C with 12 Ohm current limiting resistors(R602-R604). They are separated from the digit pulldowns because the LED's require much more current than the high efficiency 7 segment displays. Strobes 2, 3 and 4 also go to the keypad matrix which is read by U612, an input latch.

U610, a divider chip, takes the system clock of 4 MHz and divides it by 4096 which gives a 977 Hz signal. This provides the processor with a a real time interrupt which is used to synchronize updating the display, analog voltages, and instrument status.

Low Voltage Power Supplies

(page 7/11)

Line power comes in at the power entry module where it passes through a fuse and then a RFI filter. Both the hot and neutral leads are switched. Next, the voltage passes into the line voltage selector. The transformer primary is tapped for 4 different voltages: 100,120, 220, 240 VAC, 50 or 60 Hz.

The transformer has 3 secondaries, 32 VAC non centertapped and 32 VAC and 15 VAC, center tapped. The 15 volt tap is rectified by D703 and D704. It is filtered by C706 to make +8 VDC unregulated. Then it is regulated by U704 to make the +5 VDC for the processor, digital logic. U707 regulates the +5VDC for the LED display. The 32 volt tap is full wave rectified by U701 and filtered by C702 and C705 to provide ±18 VDC. These are regulated by U702 and U703 to make ±15 VDC for the analog circuitry.

The 32 volt non center tapped winding is rectified by D701 and D702, and filtered by C701. It provides +35 VDC at 1 amp to the pre-regulator for the high voltage section. U705 provides a regulated +33 VDC for the control circuits in the pre-regulator.

Front Panel (page 8/11)

The front panel consists of twelve 7 segment high efficiency displays, a ±1 display, 13 LED's, a keypad and the high voltage on/off switch.

The displays are multiplexed by 6 strobes. During each strobe, two of the twelve displays are on. In addition, up to 2 (of a maximum of 3) LEDs are on to indicate the instrument status and polarity. The ±1 display is driven the same as the LEDs, but it has larger current limiting resistors R1 and R2 (390 Ohms), since it is far more efficient then the ordinary LEDs. Finally strobes 2, 3 and 4 go to the keypad matrix allowing 1/3 of the keys to be read during each of these strobe cycles.

The High Voltage ON/OFF switch is separate from the keypad matrix. Its signals go directly back to one of the processor's input ports.

High Voltage Section

Note: These boards are covered to prevent accidental shock or injury. DO NOT ATTEMPT TO OPERATE THE UNIT WITH THE COVER OFF !!!

PS310 (page 9/11)

The biggest difference between models in the PS300 series is the high voltage section. They are configured to provide the proper combination of voltage and current through the use of different diode-capacitor multiplier circuits. For the PS310 (page 9/11), the output of transformer T1 is full wave rectified by diodes D1-D4 and filtered by C3 and C4. Poles A and B of switch SW1 change the polarity of the high voltage output and pole C reports the polarity to the processor. C3, C4 and R1-R3 are an output filter to reduce switching noise. R4, R5 and R8 form the divider to provide the voltage sense signal; R6 and R9 are the current sense resistor.

PS325 (page 10/11)

The PS325 (page 10/11) is similar to the PS310 except the transformer output is fed to the voltage doubling circuit of D1, D2, C1 and C2. Switch SW1 acts in the same fashion as on the PS310. The voltage sense circuit consists of R4, R5, R6 and R8. R7 and R9 are the current sense resistor. The output filter is slightly different to reflect the changes in output voltage and current.

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PS350 (page 11/11)

The PS350 (page 11/11) is similar to the other two, but it has a voltage quadrupler made up of C1, C2, C3, C4, D1, D2, D3 and D4. Switch SW1 acts the same and R9 is again the current sense resistor. The voltage sense circuit is made up of R2 and R3. C5 provides some additional phase compensation. Finally the output filter is set up for higher voltage and lower current.

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COMPONENT LIST

Main Board Parts List

No.	REF.	SRS part #	VALUE	DESCRIPTION
1.	BT501	6-00001-612	VALUE	Battery
2.	C 101	5-00066-513	.022U	Capacitor, Mylar/Poly, 50V, 5%, Rad
3.	C 102	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
4.	C 103	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
5.	C 104	5-00190-541	100U MIN	Cap, Mini Electrolytic, 16V, 20% Radial
6.	C 105	5-00264-513	.0015U	Capacitor, Mylar/Poly, 50V, 5%, Rad
7.	C 107	5-00059-512	.47U	Cap, Stacked Metal Film 50V 5% -40/+85c
8.	C 109	5-00264-513	.0015U	Capacitor, Mylar/Poly, 50V, 5%, Rad
9.	C 110	5-00335-513	.0039U	Capacitor, Mylar/Poly, 50V, 5%, Rad
10.	C 111	5-00100-517	2.2U	Capacitor, Tantalum, 35V, 20%, Rad
11.	C 112	5-00058-512	.33U	Cap, Stacked Metal Film 50V 5% -40/+85c
12.	C 113	5-00067-513	.033U	Capacitor, Mylar/Poly, 50V, 5%, Rad
13.	C 114	5-00060-512	1.0U	Cap, Stacked Metal Film 50V 5% -40/+85c
14.	C 115	5-00264-513	.0015U	Capacitor, Mylar/Poly, 50V, 5%, Rad
15.	C 116	5-00100-517	2.2U	Capacitor, Tantalum, 35V, 20%, Rad
16.	C 201	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
17.	C 202	5-00064-513	.0047U	Capacitor, Mylar/Poly, 50V, 5%, Rad
18.	C 203	5-00176-509	3300U	Capacitor, Electrolytic, 50V, 20%, Rad
19.	C 204	5-00041-509	220U	Capacitor, Electrolytic, 50V, 20%, Rad
20.	C 205	5-00151-501	680P	Capacitor, Ceramic Disc, 50V, 10%, SL
21.	C 206	5-00012-501	330P	Capacitor, Ceramic Disc, 50V, 10%, SL
22.	C 207	5-00100-517	2.2U	Capacitor, Tantalum, 35V, 20%, Rad
23.	C 208	5-00100-517	2.2U	Capacitor, Tantalum, 35V, 20%, Rad
24.	C 209	5-00100-517	2.2U	Capacitor, Tantalum, 35V, 20%, Rad
25.	C 210	5-00100-517	2.2U	Capacitor, Tantalum, 35V, 20%, Rad
26.	C 211	5-00100-517	2.2U	Capacitor, Tantalum, 35V, 20%, Rad
27.	C 212	5-00065-513	.01U	Capacitor, Mylar/Poly, 50V, 5%, Rad
28.	C 213	5-00065-513	.01U	Capacitor, Mylar/Poly, 50V, 5%, Rad
29.	C 215	5-00065-513	.01U	Capacitor, Mylar/Poly, 50V, 5%, Rad
30.	C 216	5-00065-513	.01U	Capacitor, Mylar/Poly, 50V, 5%, Rad
31.	C 217	5-00065-513	.01U	Capacitor, Mylar/Poly, 50V, 5%, Rad
32.	C 218	5-00065-513	.01U	Capacitor, Mylar/Poly, 50V, 5%, Rad
33.	C 219	5-00127-524	2.2U	Capacitor, Tantalum, 50V, 20%, Rad
34.	C 220	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
35.	C 301	5-00065-513	.01U	Capacitor, Mylar/Poly, 50V, 5%, Rad
36.	C 302	5-00065-513	.01U	Capacitor, Mylar/Poly, 50V, 5%, Rad
37.	C 303	5-00007-501	220P	Capacitor, Ceramic Disc, 50V, 10%, SL
38.	C 304	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
39.	C 401	5-00136-519	.01U	Capacitor, Polystyrene, 50V, 5%, Rad
40.	C 402	5-00007-501	220P	Capacitor, Ceramic Disc, 50V, 10%, SL
41.	C 405	5-00061-513	.001U	Capacitor, Mylar/Poly, 50V, 5%, Rad
42.	C 406	5-00008-501	22P	Capacitor, Ceramic Disc, 50V, 10%, SL
43.	C 407	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
44.	C 408	5-00061-513	.001U	Capacitor, Mylar/Poly, 50V, 5%, Rad
45.	C 409	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
46.	C 410	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U

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No.	REF.	SRS part #	VALUE	DESCRIPTION
47.	C 411	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
48.	C 412	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
49.	C 413	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
50.	C 414	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
51.	C 415	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
52.	C 501	5-00007-501	220P	Capacitor, Ceramic Disc, 50V, 10%, SL
53.	C 502	5-00007-501	220P	Capacitor, Ceramic Disc, 50V, 10%, SL
54.	C 503	5-00098-517	10U	Capacitor, Tantalum, 35V, 20%, Rad
55.	C 504	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
56.	C 505	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
57.	C 506	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
58.	C 601	5-00098-517	10U	Capacitor, Tantalum, 35V, 20%, Rad
59.	C 701	5-00241-553	3900U	Capacitor, Electrolytic, 80V, +/-20%
60.	C 702	5-00172-544	1000U	Cap, Mini Electrolytic, 25V, 20%, Radial
61.	C 703	5-00192-542	22U MIN	Cap, Mini Electrolytic, 50V, 20% Radial
62.	C 704	5-00100-517	2.2U	Capacitor, Tantalum, 35V, 20%, Rad
63.	C 705	5-00172-544	1000U	Cap, Mini Electrolytic, 25V, 20%, Radial
64.	C 706	5-00192-542	22U MIN	Cap, Mini Electrolytic, 50V, 20% Radial
65.	C 707	5-00100-517	2.2U	Capacitor, Tantalum, 35V, 20%, Rad
66.	C 708	5-00169-520	4700U	Capacitor, Electrolytic, 16V, 20%, Rad
67.	C 709	5-00192-542	22U MIN	Cap, Mini Electrolytic, 50V, 20% Radial
68.	C 710	5-00100-517	2.2U	Capacitor, Tantalum, 35V, 20%, Rad
69.	C 711	5-00213-546	4.7U	Cap, Mini Electro, 100V, 20%, Rad
70.	C 712	5-00214-547	.1U	Cap, Monolythic Ceramic, 100V, Z5U, 20%
71.	C 713	5-00127-524	2.2U	Capacitor, Tantalum, 50V, 20%, Rad
72.	C 714	5-00127-524	2.2U	Capacitor, Tantalum, 50V, 20%, Rad
73.	C 715	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
74.	C 716	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
75.	C 717	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
76.	C 718	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
77.	C 719	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
78.	C 720	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
79.	C 721	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
80.	C 722	5-00225-548	.1U AXIAL	Capacitor, Ceramic, 50V,+80/-20% Z5U AX
81.	C 724	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
82.	C 725	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
83.	C 726	5-00225-548	.1U AXIAL	Capacitor, Ceramic, 50V,+80/-20% Z5U AX
84.	C 727	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
85.	C 728	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
86.	C 729	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
87.	C 730	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
88.	C 731	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
89.	C 732	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
90.	C 733	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
91.	C 734	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
92.	C 735	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
93.	C 736	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
94.	C 737	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
95.	C 738	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
96.	C 739	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
97.	C 740	5-00219-529	.01U	Cap, Monolythic Ceramic, 50V, 20%, Z5U

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No.	REF.	SRS part #	VALUE	DESCRIPTION
98.	C 741	5-00219-529	.01U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
99.	C 742	5-00219-529	.01U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
100.	CX111	5-00098-517	10U	Capacitor, Tantalum, 35V, 20%, Rad
101.	CX116	5-00098-517	10U	Capacitor, Tantalum, 35V, 20%, Rad
102.	D 101	3-00004-301	1N4148	Diode
103.	D 102	3-00004-301	1N4148	Diode
104.	D 104	3-00004-301	1N4148	Diode
105.	D 105	3-00004-301	1N4148	Diode
106.	D 106	3-00004-301	1N4148	Diode
107.	D 107	3-00004-301	1N4148	Diode
108.	D 201	3-00221-301	1N4004	Diode
109.	D 202	3-00221-301	1N4004	Diode
110.	D 203	3-00228-301	MUR160	Diode
111.	D 204	3-00291-340	LM336Z-2.5V	Integrated Circuit (Thru-hole Pkg)
112.	D 205	3-00004-301	1N4148	Diode
113.	D 207	3-00380-301	1N5248	Diode
114.	D 208	3-00221-301	1N4004	Diode
115.	D 209	3-00380-301	1N5248	Diode
116.	D 210	3-00381-301	SA64A	Diode
117.	D 211	3-00381-301	SA64A	Diode
118.	D 212	3-00390-301	1N969A/1N5251B	Diode
119.	D 501	3-00004-301	1N4148	Diode
120.	D 502	3-00004-301	1N4148	Diode
121.	D 503	3-00004-301	1N4148	Diode
122.	D 703	3-00221-301	1N4004	Diode
123.	D 704	3-00221-301	1N4004	Diode
124.	J 401	1-00073-120	INSL	Connector, BNC
125.	J 402	1-00073-120	INSL	Connector, BNC
126.	J 601	1-00081-110	554434-1 SHIELD	Pins & Connectors, AMP
127.	J 602	1-00038-130	40 PIN DIL	Connector, Male
128.	J 603	1-00097-130	24 PIN DIL	Connector, Male
129.	L 201	6-00044-601	750UH	Inductor
130.	N 101	4-00333-421	10KX5	Res. Network, SIP, 1/4W,2% (Isolated)
131.	N 103	4-00333-421	10KX5	Res. Network, SIP, 1/4W,2% (Isolated)
132.	N 104	4-00244-421	10KX4	Res. Network, SIP, 1/4W,2% (Isolated)
133.	N 301	4-00334-425	10KX5	Resistor Network SIP 1/4W 2% (Common)
134.	N 501	4-00244-421	10KX4	Res. Network, SIP, 1/4W,2% (Isolated)
135.	N 502	4-00334-425	10KX5	Resistor Network SIP 1/4W 2% (Common)
136.	N 601	4-00420-420	390X8	Resistor Network, DIP, 1/4W,2%,8 Ind
137.	N 602	4-00420-420	390X8	Resistor Network, DIP, 1/4W,2%,8 Ind
138.	N 603	4-00276-425	10KX9	Resistor Network SIP 1/4W 2% (Common)
139.	N 604	4-00285-421	470X3	Res. Network, SIP, 1/4W,2% (Isolated)
140.	P 401	4-00657-452	500	Pot, Multi Turn Trim, Mini
141.	PC1	7-00184-701	PS300-25	Printed Circuit Board
142.	Q 201	3-00283-340	IRF530/IRF532	Integrated Circuit (Thru-hole Pkg)
143.	Q 202	3-00283-340	IRF530/IRF532	Integrated Circuit (Thru-hole Pkg)
144.	Q 203	3-00374-329	MTP20P06	Voltage Reg., TO-220 (TAB) Package
145.	Q 501	3-00021-325	2N3904	Transistor, TO-92 Package
146.	R 101	4-00450-407	681	Resistor, Metal Film, 1/8W, 1%, 50PPM
147.	R 102	4-00194-407	5.11K	Resistor, Metal Film, 1/8W, 1%, 50PPM
148.	R 103	4-00185-407	4.02K	Resistor, Metal Film, 1/8W, 1%, 50PPM

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No.	REF.	SRS part #	VALUE	DESCRIPTION
149.	R 104	4-00138-407	10.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
150.	R 105	4-00450-407	681	Resistor, Metal Film, 1/8W, 1%, 50PPM
151.	R 110	4-00130-407	1.00K	Resistor, Metal Film, 1/8W, 1%, 50PPM
152.	R 111	4-00138-407	10.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
153.	R 112	4-00446-407	47.5K	Resistor, Metal Film, 1/8W, 1%, 50PPM
154.	R 113	4-00553-407	2.55K	Resistor, Metal Film, 1/8W, 1%, 50PPM
155.	R 114	4-00447-407	82.5K	Resistor, Metal Film, 1/8W, 1%, 50PPM
156.	R 115	4-00553-407	2.55K	Resistor, Metal Film, 1/8W, 1%, 50PPM
157.	R 116	4-00190-407	42.2K	Resistor, Metal Film, 1/8W, 1%, 50PPM
158.	R 117	4-00190-407	42.2K	Resistor, Metal Film, 1/8W, 1%, 50PPM
159.	R 119	4-00188-407	4.99K	Resistor, Metal Film, 1/8W, 1%, 50PPM
160.	R 122	4-00607-407	3.92K	Resistor, Metal Film, 1/8W, 1%, 50PPM
161.	R 123	4-00138-407	10.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
162.	R 124	4-00447-407	82.5K	Resistor, Metal Film, 1/8W, 1%, 50PPM
163.	R 125	4-00192-407	49.9K	Resistor, Metal Film, 1/8W, 1%, 50PPM
164.	R 201	4-00483-407	1.05K	Resistor, Metal Film, 1/8W, 1%, 50PPM
165.	R 202	4-00309-407	3.32K	Resistor, Metal Film, 1/8W, 1%, 50PPM
166.	R 203	4-00034-401	10K	Resistor, Carbon Film, 1/4W, 5%
167.	R 204	4-00138-407	10.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
168.	R 205	4-00176-407	3.01K	Resistor, Metal Film, 1/8W, 1%, 50PPM
169.	R 206	4-00135-407	1.50K	Resistor, Metal Film, 1/8W, 1%, 50PPM
170.	R 207	4-00851-407	340	Resistor, Metal Film, 1/8W, 1%, 50PPM
171.	R 208	4-00138-407	10.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
172.	R 209	4-00176-407	3.01K	Resistor, Metal Film, 1/8W, 1%, 50PPM
173.	R 210	4-00135-407	1.50K	Resistor, Metal Film, 1/8W, 1%, 50PPM
174.	R 212	4-00364-402	1	Resistor, Carbon Comp, 1/2W, 5%
175.	R 213	4-00364-402	1	Resistor, Carbon Comp, 1/2W, 5%
176.	R 214	4-00364-402	1	Resistor, Carbon Comp, 1/2W, 5%
177.	R 215	4-00364-402	1	Resistor, Carbon Comp, 1/2W, 5%
178.	R 216	4-00138-407	10.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
179.	R 217	4-00138-407	10.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
180.	R 218	4-00547-407	18.2K	Resistor, Metal Film, 1/8W, 1%, 50PPM
181.	R 219	4-00192-407	49.9K	Resistor, Metal Film, 1/8W, 1%, 50PPM
182.	R 220	4-00548-407	29.4K	Resistor, Metal Film, 1/8W, 1%, 50PPM
183.	R 221	4-00138-407	10.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
184.	R 222	4-00080-401	47	Resistor, Carbon Film, 1/4W, 5%
185.	R 223	4-00080-401	47	Resistor, Carbon Film, 1/4W, 5%
186.	R 224	4-00045-401	2.0K	Resistor, Carbon Film, 1/4W, 5%
187.	R 301	4-00021-401	1.0K	Resistor, Carbon Film, 1/4W, 5%
188.	R 302	4-00021-401	1.0K	Resistor, Carbon Film, 1/4W, 5%
189.	R 303	4-00312-401	270K	Resistor, Carbon Film, 1/4W, 5%
190.	R 304	4-00021-401	1.0K	Resistor, Carbon Film, 1/4W, 5%
191.	R 305	4-00021-401	1.0K	Resistor, Carbon Film, 1/4W, 5%
192.	R 306	4-00021-401	1.0K	Resistor, Carbon Film, 1/4W, 5%
193.	R 307	4-00021-401	1.0K	Resistor, Carbon Film, 1/4W, 5%
194.	R 308	4-00069-401	300K	Resistor, Carbon Film, 1/4W, 5%
195.	R 401	4-00021-401	1.0K	Resistor, Carbon Film, 1/4W, 5%
196.	R 402	4-00021-401	1.0K	Resistor, Carbon Film, 1/4W, 5%
197.	R 403	4-00034-401	10K	Resistor, Carbon Film, 1/4W, 5%
198.	R 404	4-00164-407	20.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
199.	R 409	4-00022-401	1.0M	Resistor, Carbon Film, 1/4W, 5%

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No.	REF.	SRS part #	VALUE	DESCRIPTION
200.	R 410	4-00170-407	249K	Resistor, Metal Film, 1/8W, 1%, 50PPM
201.	R 411	4-00196-407	6.04K	Resistor, Metal Film, 1/8W, 1%, 50PPM
202.	R 412	4-00034-401	10K	Resistor, Carbon Film, 1/4W, 5%
203.	R 413	4-00138-407	10.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
204.	R 414	4-00138-407	10.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
205.	R 415	4-00034-401	10K	Resistor, Carbon Film, 1/4W, 5%
206.	R 416	4-00057-401	220	Resistor, Carbon Film, 1/4W, 5%
207.	R 417	4-00034-401	10K	Resistor, Carbon Film, 1/4W, 5%
208.	R 418	4-00021-401	1.0K	Resistor, Carbon Film, 1/4W, 5%
209.	R 419	4-00021-401	1.0K	Resistor, Carbon Film, 1/4W, 5%
210.	R 420	4-00034-401	10K	Resistor, Carbon Film, 1/4W, 5%
211.	R 421	4-00034-401	10K	Resistor, Carbon Film, 1/4W, 5%
212.	R 422	4-00022-401	1.0M	Resistor, Carbon Film, 1/4W, 5%
213.	R 501	4-00027-401	1.5K	Resistor, Carbon Film, 1/4W, 5%
214.	R 502	4-00034-401	10K	Resistor, Carbon Film, 1/4W, 5%
215.	R 503	4-00083-401	47K	Resistor, Carbon Film, 1/4W, 5%
216.	R 504	4-00034-401	10K	Resistor, Carbon Film, 1/4W, 5%
217.	R 505	4-00034-401	10K	Resistor, Carbon Film, 1/4W, 5%
218.	R 506	4-00138-407	10.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
219.	R 507	4-00517-407	3.57K	Resistor, Metal Film, 1/8W, 1%, 50PPM
220.	R 508	4-00519-407	4.75K	Resistor, Metal Film, 1/8W, 1%, 50PPM
221.	R 601	4-00079-401	4.7K	Resistor, Carbon Film, 1/4W, 5%
222.	R 602	4-00314-401	12	Resistor, Carbon Film, 1/4W, 5%
223.	R 603	4-00314-401	12	Resistor, Carbon Film, 1/4W, 5%
224.	R 604	4-00314-401	12	Resistor, Carbon Film, 1/4W, 5%
225.	R 701	4-00165-407	200	Resistor, Metal Film, 1/8W, 1%, 50PPM
226.	R 702	4-00194-407	5.11K	Resistor, Metal Film, 1/8W, 1%, 50PPM
227.	R 703	4-00681-436	SG240	Thermistor, ICL (Inrush Current Limiter)
228.	RX102	4-00900-407	20.5K	Resistor, Metal Film, 1/8W, 1%, 50PPM
229.	RX103	4-00279-407	3.09K	Resistor, Metal Film, 1/8W, 1%, 50PPM
230.	SO502	1-00026-150	28 PIN 600 MIL	Socket, THRU-HOLE
231.	SO503	1-00025-150	24 PIN 600 MIL	Socket, THRU-HOLE
232.	SO601	1-00027-150	40 PIN 600 MIL	Socket, THRU-HOLE
233.	SO602	1-00024-150	20 PIN 300 MIL	Socket, THRU-HOLE
234.	SO603	1-00024-150	20 PIN 300 MIL	Socket, THRU-HOLE
235.	SW501	2-00003-203	SPDT	Switch, ON-NONE-ON, Locking Toggle
236.	SW701	2-00023-218	DPDT	Switch, Panel Mount, Power, Rocker
237.	T 701	6-00041-610	PS300	Transformer
238.	U 101	3-00087-340	LF347	Integrated Circuit (Thru-hole Pkg)
239.	U 102	3-00276-340	LT1012	Integrated Circuit (Thru-hole Pkg)
240.	U 104	3-00076-340	DG211	Integrated Circuit (Thru-hole Pkg)
241.	U 105	3-00276-340	LT1012	Integrated Circuit (Thru-hole Pkg)
242.	U 106	3-00276-340	LT1012	Integrated Circuit (Thru-hole Pkg)
243.	U 107	3-00087-340	LF347	Integrated Circuit (Thru-hole Pkg)
244.	U 109	3-00091-340	LF412	Integrated Circuit (Thru-hole Pkg)
245.	U 201	3-00236-340	LM555	Integrated Circuit (Thru-hole Pkg)
246.	U 202	3-00280-340	74HC10	Integrated Circuit (Thru-hole Pkg)
247.	U 203	3-00049-340	74HC74	Integrated Circuit (Thru-hole Pkg)
248.	U 204	3-00286-340	SN75372	Integrated Circuit (Thru-hole Pkg)
249.	U 205	3-00234-329	LT1085	Voltage Reg., TO-220 (TAB) Package
250.	U 206	3-00094-340	LM311	Integrated Circuit (Thru-hole Pkg)

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No.	REF.	SRS part #	VALUE	DESCRIPTION
251.	U 207	3-00276-340	LT1012	Integrated Circuit (Thru-hole Pkg)
252.	U 208	3-00122-325	79L05	Transistor, TO-92 Package
253.	U 301	8-00072-860	SR566 ASSY	SRS sub assemblies
254.	U 302	3-00049-340	74HC74	Integrated Circuit (Thru-hole Pkg)
255.	U 303	3-00049-340	74HC74	Integrated Circuit (Thru-hole Pkg)
256.	U 305	3-00277-340	74HC11	Integrated Circuit (Thru-hole Pkg)
257.	U 306	3-00199-340	74HC4538	Integrated Circuit (Thru-hole Pkg)
258.	U 401	3-00087-340	LF347	Integrated Circuit (Thru-hole Pkg)
259.	U 402	3-00087-340	LF347	Integrated Circuit (Thru-hole Pkg)
260.	U 403	3-00087-340	LF347	Integrated Circuit (Thru-hole Pkg)
261.	U 404	3-00094-340	LM311	Integrated Circuit (Thru-hole Pkg)
262.	U 405	3-00090-340	LF411	Integrated Circuit (Thru-hole Pkg)
263.	U 406	3-00188-340	LH0070-0H	Integrated Circuit (Thru-hole Pkg)
264.	U 407	3-00076-340	DG211	Integrated Circuit (Thru-hole Pkg)
265.	U 408	3-00076-340	DG211	Integrated Circuit (Thru-hole Pkg)
266.	U 409	3-00076-340	DG211	Integrated Circuit (Thru-hole Pkg)
267.	U 410	3-00059-340	AD7542JN	Integrated Circuit (Thru-hole Pkg)
268.	U 411	3-00046-340	74HC374	Integrated Circuit (Thru-hole Pkg)
269.	U 501	3-00132-340	Z80A-CPU	Integrated Circuit (Thru-hole Pkg)
270.	U 503	3-00081-341	2KX8-100	STATIC RAM, I.C.
271.	U 504	3-00037-340	74HC138	Integrated Circuit (Thru-hole Pkg)
272.	U 505	3-00037-340	74HC138	Integrated Circuit (Thru-hole Pkg)
273.	U 506	3-00044-340	74HC244	Integrated Circuit (Thru-hole Pkg)
274.	U 507	3-00046-340	74HC374	Integrated Circuit (Thru-hole Pkg)
275.	U 508	3-00051-340	74HCU04	Integrated Circuit (Thru-hole Pkg)
276.	U 509	3-00185-340	LM2901	Integrated Circuit (Thru-hole Pkg)
277.	U 510	3-00045-340	74HC32	Integrated Circuit (Thru-hole Pkg)
278.	U 511	3-00049-340	74HC74	Integrated Circuit (Thru-hole Pkg)
279.	U 512	3-00044-340	74HC244	Integrated Circuit (Thru-hole Pkg)
280.	U 604	3-00046-340	74HC374	Integrated Circuit (Thru-hole Pkg)
281.	U 605	3-00278-340	UDN2585A	Integrated Circuit (Thru-hole Pkg)
282.	U 606	3-00046-340	74HC374	Integrated Circuit (Thru-hole Pkg)
283.	U 607	3-00036-340	74HC00	Integrated Circuit (Thru-hole Pkg)
284.	U 609	3-00046-340	74HC374	Integrated Circuit (Thru-hole Pkg)
285.	U 610	3-00169-340	74HC4020	Integrated Circuit (Thru-hole Pkg)
286.	U 611	3-00046-340	74HC374	Integrated Circuit (Thru-hole Pkg)
287.	U 612	3-00044-340	74HC244	Integrated Circuit (Thru-hole Pkg)
288.	U 613	3-00215-340	MPQ2222	Integrated Circuit (Thru-hole Pkg)
289.	U 701	3-00062-340	KBP201G/BR-81D	Integrated Circuit (Thru-hole Pkg)
290.	U 702	3-00114-329	7815	Voltage Reg., TO-220 (TAB) Package
291.	U 703	3-00120-329	7915	Voltage Reg., TO-220 (TAB) Package
292.	U 704	3-00112-329	7805	Voltage Reg., TO-220 (TAB) Package
293.	U 705	3-00096-340	LM317L	Integrated Circuit (Thru-hole Pkg)
294.	U 706	3-00062-340	KBP201G/BR-81D	Integrated Circuit (Thru-hole Pkg)
295.	U 707	3-00112-329	7805	Voltage Reg., TO-220 (TAB) Package
296.	X 501	6-00010-620	4.000 MHZ	Crystal
297.	Z 0	0-00001-000	WIRE	Hardware, Misc.
298.	Z 0	0-00014-002	6J4	Power_Entry Hardware
299.	Z 0	0-00043-011	4-40 KEP	Nut, Kep
300.	Z 0	0-00050-011	8-32 KEP	Nut, Kep
301.	Z 0	0-00081-032	320882	Termination

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No.	REF.	SRS part #	VALUE	DESCRIPTION
302.	Z 0	0-00089-033	4"	Tie
303.	Z 0	0-00096-041	#4 SPLIT	Washer, Split
304.	Z 0	0-00118-053	14" #24	Wire #24 UL1007 Strip 1/4x1/4 Tin
305.	Z 0	0-00136-053	8-1/2" #24	Wire #24 UL1007 Strip 1/4x1/4 Tin
306.	Z 0	0-00149-020	4-40X1/4PF	Screw, Flathead Phillips
307.	Z 0	0-00181-020	6-32X1/4PF	Screw, Flathead Phillips
308.	Z 0	0-00190-030	#8X1"	Spacer
309.	Z 0	0-00207-003	TO-5	Insulators
310.	Z 0	0-00208-020	4-40X3/8PF	Screw, Flathead Phillips
311.	Z 0	0-00209-021	4-40X3/8PP	Screw, Panhead Phillips
312.	Z 0	0-00231-043	#4 SHOULDER	Washer, nylon
313.	Z 0	0-00233-000	HANDLE1	Hardware, Misc.
314.	Z 0	0-00237-016	F1404	Power Button
315.	Z 0	0-00243-003	TO-220	Insulators
316.	Z 0	0-00266-052	8-1/2" #22 BLK	Wire #22 UL1007
317.	Z 0	0-00269-052	7-3/4" #22 WH	Wire #22 UL1007
318.	Z 0	0-00284-025	10-32X1/2	Screw, Allen Head
319.	Z 0	0-00289-053	14" #24	Wire #24 UL1007 Strip 1/4x1/4 Tin
320.	Z 0	0-00290-020	8-32X3/8PF	Screw, Flathead Phillips
321.	Z 0	0-00407-032	SOLDR SLV RG174	Termination
322.	Z 0	0-00500-000	554808-1	Hardware, Misc.
323.	Z 0	0-00521-048	3" #18	Wire, #18 UL1015 Strip 3/8 x 3/8 No Tin
324.	Z 0	0-00523-048	5-5/8" #18	Wire, #18 UL1015 Strip 3/8 x 3/8 No Tin
325.	Z 0	0-00893-026	8-32X3/8PF	Screw, Black, All Types
326.	Z 0	1-00052-171	40 COND	Cable Assembly, Ribbon
327.	Z 0	1-00084-170	PS300 SHV-SHV	Cable Assembly, Multiconductor
328.	Z 0	1-00085-170	PS300 SHV-MHV	Cable Assembly, Multiconductor
329.	Z 0	1-00100-171	P/S OPT.1 CABLE	Cable Assembly, Ribbon
330.	Z 0	6-00004-611	1A 3AG	Fuse
331.	Z 0	6-00212-630	1"X.25"CYL	Ferrite Beads
332.	Z 0	7-00188-720	PS300-31	Fabricated Part
333.	Z 0	7-00194-715	PS300-38	Bracket
334.	Z 0	7-00205-720	SR510-26	Fabricated Part
335.	Z 0	7-00218-720	PS300-42	Fabricated Part
336.	Z 0	7-00225-720	PS300-48	Fabricated Part
337.	Z 0	7-00229-715	PS300-49	Bracket
338.	Z 0	7-00680-720	PS300-52	Fabricated Part
339.	Z 0	9-00220-917	PS300 SERIAL	Product Labels

Front Panel Parts List

No.	REF.	SRS part #	VALUE	DESCRIPTION
1.	D 1	3-00012-306	GREEN	LED, Rectangular
2.	D 2	3-00012-306	GREEN	LED, Rectangular
3.	D 3	3-00175-306	YELLOW	LED, Rectangular
4.	D 4	3-00012-306	GREEN	LED, Rectangular
5.	D 5	3-00012-306	GREEN	LED, Rectangular
6.	D 6	3-00175-306	YELLOW	LED, Rectangular
7.	D 7	3-00175-306	YELLOW	LED, Rectangular

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No.	REF.	SRS part #	VALUE	DESCRIPTION
8.	D 8	3-00012-306	GREEN	LED, Rectangular
9.	D 9	3-00012-306	GREEN	LED, Rectangular
10.	D 10	3-00013-306	RED	LED, Rectangular
11.	D 11	3-00175-306	YELLOW	LED, Rectangular
12.	D 12	3-00013-306	RED	LED, Rectangular
13.	D 13	3-00013-306	RED	LED, Rectangular
14.	D 14	3-00004-301	1N4148	Diode
15.	D 15	3-00004-301	1N4148	Diode
16.	D 16	3-00004-301	1N4148	Diode
17.	J 1	1-00038-130	40 PIN DIL	Connector, Male
18.	PC1	7-00163-701	PS300-2	Printed Circuit Board
19.	R 1	4-00076-401	390	Resistor, Carbon Film, 1/4W, 5%
20.	R 2	4-00076-401	390	Resistor, Carbon Film, 1/4W, 5%
21.	SW18	2-00029-221	1808.0202	SWITCH, ROCKER MOM ON-OFF-ON
22.	U 1	3-00288-340	HDSP-H101	Integrated Circuit (Thru-hole Pkg)
23.	U 2	3-00288-340	HDSP-H101	Integrated Circuit (Thru-hole Pkg)
24.	U 3	3-00288-340	HDSP-H101	Integrated Circuit (Thru-hole Pkg)
25.	U 4	3-00288-340	HDSP-H101	Integrated Circuit (Thru-hole Pkg)
26.	U 5	3-00289-340	HDSP-H107	Integrated Circuit (Thru-hole Pkg)
27.	U 6	3-00290-340	HDSP-A101	Integrated Circuit (Thru-hole Pkg)
28.	U 7	3-00290-340	HDSP-A101	Integrated Circuit (Thru-hole Pkg)
29.	U 8	3-00290-340	HDSP-A101	Integrated Circuit (Thru-hole Pkg)
30.	U 9	3-00290-340	HDSP-A101	Integrated Circuit (Thru-hole Pkg)
31.	U 10	3-00288-340	HDSP-H101	Integrated Circuit (Thru-hole Pkg)
32.	U 11	3-00288-340	HDSP-H101	Integrated Circuit (Thru-hole Pkg)
33.	U 12	3-00288-340	HDSP-H101	Integrated Circuit (Thru-hole Pkg)
34.	U 13	3-00288-340	HDSP-H101	Integrated Circuit (Thru-hole Pkg)
35.	Z 0	0-00096-041	#4 SPLIT	Washer, Split
36.	Z 0	0-00110-053	1-1/2" #24	Wire #24 UL1007 Strip 1/4x1/4 Tin
37.	Z 0	0-00187-021	4-40X1/4PP	Screw, Panhead Phillips
38.	Z 0	0-00209-021	4-40X3/8PP	Screw, Panhead Phillips
39.	Z 0	0-00254-044	PS300	Window
40.	Z 0	7-00162-740	PS300-3	Keypad, Conductive Rubber
41.	Z 0	7-00175-709	PS325	Lexan Overlay
42.	Z 0	7-00208-709	PS310	Lexan Overlay
43.	Z 0	7-00209-709	PS350	Lexan Overlay
44.	Z 0	7-00231-710	PS300-50	Front Panel

PS310 HV Board Parts List

No.	REF.	SRS part #	VALUE	DESCRIPTION
1.	C 1	5-00174-538	.1U	Capacitor, metal film, 2000 volts
2.	C 2	5-00174-538	.1U	Capacitor, metal film, 2000 volts
3.	C 3	5-00174-538	.1U	Capacitor, metal film, 2000 volts
4.	C 4	5-00174-538	.1U	Capacitor, metal film, 2000 volts
5.	C 5	5-00276-560	.0033U	Capacitor, Ceramic Disc, 3KV
6.	C 6	5-00098-517	10U	Capacitor, Tantalum, 35V, 20%, Rad
7.	C 7	5-00098-517	10U	Capacitor, Tantalum, 35V, 20%, Rad
8.	D 1	3-00284-301	ESJC04-05	Diode

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No.	REF.	SRS part #	VALUE	DESCRIPTION
9.	D 2	3-00284-301	ESJC04-05	Diode
10.	D 3	3-00284-301	ESJC04-05	Diode
11.	D 4	3-00284-301	ESJC04-05	Diode
12.	D 5	3-00004-301	1N4148	Diode
13.	D 6	3-00004-301	1N4148	Diode
14.	J 1	0-00138-050	9" #18	Wire #18 UL1007 Stripped 3/8x3/8 No Tin
15.	J 2	0-00138-050	9" #18	Wire #18 UL1007 Stripped 3/8x3/8 No Tin
16.	J 3	0-00280-050	9" #18	Wire #18 UL1007 Stripped 3/8x3/8 No Tin
17.	J 6	0-00278-055	HV 4-1/2"	Wire, Other
18.	J 7	0-00278-055	HV 4-1/2"	Wire, Other
19.	J 8	0-00281-055	HV 3"	Wire, Other
20.	J 9	0-00277-053	4" #24 BLK	Wire #24 UL1007 Strip 1/4x1/4 Tin
21.	J 10	0-00278-055	HV 4-1/2"	Wire, Other
22.	J 11	0-00541-052	8.5" #22GRN/YEL	Wire #22 UL1007
23.	J 12	0-00051-056	RG174	Cable, Coax & Misc.
24.	J 13	0-00051-056	RG174	Cable, Coax & Misc.
25.	PC1	7-00185-701	PS300-26	Printed Circuit Board
26.	R 1	4-00510-448	12.1K	Resistor, Metal Film, 1W, 1%,
27.	R 2	4-00510-448	12.1K	Resistor, Metal Film, 1W, 1%,
28.	R 3	4-00510-448	12.1K	Resistor, Metal Film, 1W, 1%,
29.	R 4	4-00505-448	5.36M	Resistor, Metal Film, 1W, 1%,
30.	R 5	4-00505-448	5.36M	Resistor, Metal Film, 1W, 1%,
31.	R 6	4-00299-407	24.9	Resistor, Metal Film, 1/8W, 1%, 50PPM
32.	R 8	4-00576-407	17.8K	Resistor, Metal Film, 1/8W, 1%, 50PPM
33.	R 9	4-00299-407	24.9	Resistor, Metal Film, 1/8W, 1%, 50PPM
34.	SW1	2-00030-210	3PDT-CUSTOM	Switch, Rotary, PCB Mounted
35.	T 1	6-00035-610	PS300-HV	Transformer
36.	T 2	6-00119-614	FT82-77	Iron Powder Core
37.	Z 0	0-00025-005	3/8"	Lugs
38.	Z 0	0-00089-033	4"	Tie
39.	Z 0	0-00111-053	1-3/4"#24B	Wire #24 UL1007 Strip 1/4x1/4 Tin
40.	Z 0	0-00153-057	GROMMET2	Grommet
41.	Z 0	0-00187-021	4-40X1/4PP	Screw, Panhead Phillips
42.	Z 0	0-00209-021	4-40X3/8PP	Screw, Panhead Phillips
43.	Z 0	0-00225-052	17" #22 BLACK	Wire #22 UL1007
44.	Z 0	0-00226-052	17" #22 WHITE	Wire #22 UL1007
45.	Z 0	0-00228-052	17" #22 GREEN	Wire #22 UL1007
46.	Z 0	0-00259-021	4-40X1/2"PP	Screw, Panhead Phillips
47.	Z 0	0-00285-055	HV 2"	Wire, Other
48.	Z 0	0-00331-031	4-40X5/8 F/F	Standoff
49.	Z 0	0-00407-032	SOLDR SLV RG174	Termination
50.	Z 0	1-00082-100	1704-1 SHV	Connector, Misc.
51.	Z 0	7-00219-720	PS300-43	Fabricated Part
52.	Z 0	7-00220-720	PS300-44	Fabricated Part
53.	Z 0	9-00185-917	DANGER	Product Labels

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PS325 HV Board Parts List

No.	REF.	SRS part #	VALUE	DESCRIPTION
1.	C 1	5-00174-538	.1U	Capacitor, metal film, 2000 volts
2.	C 2	5-00174-538	.1U	Capacitor, metal film, 2000 volts
3.	C 3	5-00175-539	.047U	Capacitor, Metal Film, 4000 V
4.	C 4	5-00175-539	.047U	Capacitor, Metal Film, 4000 V
5.	C 5	5-00276-560	.0033U	Capacitor, Ceramic Disc, 3KV
6.	C 6	5-00098-517	10U	Capacitor, Tantalum, 35V, 20%, Rad
7.	C 7	5-00098-517	10U	Capacitor, Tantalum, 35V, 20%, Rad
8.	C 8	5-00023-529	.1U	Cap, Monolythic Ceramic, 50V, 20%, Z5U
9.	D 1	3-00285-301	CS57-04	Diode
10.	D 2	3-00285-301	CS57-04	Diode
11.	D 3	3-00004-301	1N4148	Diode
12.	D 4	3-00004-301	1N4148	Diode
13.	J 1	0-00138-050	9" #18	Wire #18 UL1007 Stripped 3/8x3/8 No Tin
14.	J 2	0-00138-050	9" #18	Wire #18 UL1007 Stripped 3/8x3/8 No Tin
15.	J 3	0-00280-050	9" #18	Wire #18 UL1007 Stripped 3/8x3/8 No Tin
16.	J 6	0-00278-055	HV 4-1/2"	Wire, Other
17.	J 7	0-00278-055	HV 4-1/2"	Wire, Other
18.	J 8	0-00278-055	HV 4-1/2"	Wire, Other
19.	J 9	0-00277-053	4" #24 BLK	Wire #24 UL1007 Strip 1/4x1/4 Tin
20.	J 10	0-00279-055	HV 5"	Wire, Other
21.	J 11	0-00541-052	8.5" #22GRN/YEL	Wire #22 UL1007
22.	J 11	1-00082-100	1704-1 SHV	Connector, Misc.
23.	J 12	0-00051-056	RG174	Cable, Coax & Misc.
24.	J 13	0-00051-056	RG174	Cable, Coax & Misc.
25.	PC1	7-00186-701	PS300-27	Printed Circuit Board
26.	R 1	4-00455-448	20.0K	Resistor, Metal Film, 1W, 1%,
27.	R 2	4-00455-448	20.0K	Resistor, Metal Film, 1W, 1%,
28.	R 4	4-00456-448	2.00M	Resistor, Metal Film, 1W, 1%,
29.	R 5	4-00456-448	2.00M	Resistor, Metal Film, 1W, 1%,
30.	R 6	4-00456-448	2.00M	Resistor, Metal Film, 1W, 1%,
31.	R 7	4-00191-407	49.9	Resistor, Metal Film, 1/8W, 1%, 50PPM
32.	R 8	4-00164-407	20.0K	Resistor, Metal Film, 1/8W, 1%, 50PPM
33.	R 9	4-00191-407	49.9	Resistor, Metal Film, 1/8W, 1%, 50PPM
34.	SW1	2-00030-210	3PDT-CUSTOM	Switch, Rotary, PCB Mounted
35.	T 1	6-00035-610	PS300-HV	Transformer
36.	T 2	6-00119-614	FT82-77	Iron Powder Core
37.	Z 0	0-00025-005	3/8"	Lugs
38.	Z 0	0-00089-033	4"	Tie
39.	Z 0	0-00111-053	1-3/4"#24B	Wire #24 UL1007 Strip 1/4x1/4 Tin
40.	Z 0	0-00153-057	GROMMET2	Grommet
41.	Z 0	0-00187-021	4-40X1/4PP	Screw, Panhead Phillips
42.	Z 0	0-00209-021	4-40X3/8PP	Screw, Panhead Phillips
43.	Z 0	0-00225-052	17" #22 BLACK	Wire #22 UL1007
44.	Z 0	0-00226-052	17" #22 WHITE	Wire #22 UL1007
45.	Z 0	0-00228-052	17" #22 GREEN	Wire #22 UL1007
46.	Z 0	0-00259-021	4-40X1/2"PP	Screw, Panhead Phillips
47.	Z 0	0-00285-055	HV 2"	Wire, Other
48.	Z 0	0-00331-031	4-40X5/8 F/F	Standoff

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No.	REF.	SRS part #	VALUE	DESCRIPTION
49.	Z 0	0-00407-032	SOLDR SLV RG174	Termination
50.	Z 0	7-00219-720	PS300-43	Fabricated Part
51.	Z 0	7-00220-720	PS300-44	Fabricated Part
52.	Z 0	9-00185-917	DANGER	Product Labels

PS350 HV Board Parts List

No.	REF.	SRS part #	VALUE	DESCRIPTION
1.	C 1	5-00175-539	.047U	Capacitor, Metal Film, 4000 V
2.	C 2	5-00175-539	.047U	Capacitor, Metal Film, 4000 V
3.	C 3	5-00175-539	.047U	Capacitor, Metal Film, 4000 V
4.	C 4	5-00175-539	.047U	Capacitor, Metal Film, 4000 V
5.	C 5	5-00333-533	.01U 6KV	Capacitor, Metallized Polyester
6.	C 6	5-00098-517	10U	Capacitor, Tantalum, 35V, 20%, Rad
7.	C 7	5-00098-517	10U	Capacitor, Tantalum, 35V, 20%, Rad
8.	C 8	5-00336-533	.04U 6KV	Capacitor, Metallized Polyester
9.	D 1	3-00285-301	CS57-04	Diode
10.	D 2	3-00285-301	CS57-04	Diode
11.	D 3	3-00285-301	CS57-04	Diode
12.	D 4	3-00285-301	CS57-04	Diode
13.	D 5	3-00221-301	1N4004	Diode
14.	D 6	3-00221-301	1N4004	Diode
15.	D 7	3-00667-301	SA12CA	Diode
16.	J 1	0-00138-050	9" #18	Wire #18 UL1007 Stripped 3/8x3/8 No Tin
17.	J 2	0-00138-050	9" #18	Wire #18 UL1007 Stripped 3/8x3/8 No Tin
18.	J 3	0-00280-050	9" #18	Wire #18 UL1007 Stripped 3/8x3/8 No Tin
19.	J 6	0-00278-055	HV 4-1/2"	Wire, Other
20.	J 7	0-00278-055	HV 4-1/2"	Wire, Other
21.	J 8	0-00278-055	HV 4-1/2"	Wire, Other
22.	J 9	0-00277-053	4" #24 BLK	Wire #24 UL1007 Strip 1/4x1/4 Tin
23.	J 11	1-00082-100	1704-1 SHV	Connector, Misc.
24.	J 12	0-00278-055	HV 4-1/2"	Wire, Other
25.	J 13	0-00286-053	6" #24 GRN	Wire #24 UL1007 Strip 1/4x1/4 Tin
26.	J 14	0-00051-056	RG174	Cable, Coax & Misc.
27.	J 15	0-00051-056	RG174	Cable, Coax & Misc.
28.	PC1	7-00711-701	HV PS350	Printed Circuit Board
29.	R 1	4-00451-448	10.0K	Resistor, Metal Film, 1W, 1%,
30.	R 2	4-01589-448	2.49M - 25PPM	Resistor, Metal Film, 1W, 1%,
31.	R 3	4-01590-408	33.2K	Resistor, Metal Film, 1/8W, 0.1%, 25ppm
32.	R 4	4-00786-439	49.9	Resistor, Metal Film, 1/4W, 1%, 50ppm
33.	R 5	4-01589-448	2.49M - 25PPM	Resistor, Metal Film, 1W, 1%,
34.	R 6	4-01589-448	2.49M - 25PPM	Resistor, Metal Film, 1W, 1%,
35.	R 7	4-01589-448	2.49M - 25PPM	Resistor, Metal Film, 1W, 1%,
36.	R 8	4-01589-448	2.49M - 25PPM	Resistor, Metal Film, 1W, 1%,
37.	R 9	4-01589-448	2.49M - 25PPM	Resistor, Metal Film, 1W, 1%,
38.	R 10	4-01589-448	2.49M - 25PPM	Resistor, Metal Film, 1W, 1%,
39.	R 11	4-01589-448	2.49M - 25PPM	Resistor, Metal Film, 1W, 1%,
40.	SW1	2-00030-210	3PDT-CUSTOM	Switch, Rotary, PCB Mounted
41.	T 1	6-00035-610	PS300-HV	Transformer

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No.	REF.	SRS part #	VALUE	DESCRIPTION
42.	T 2	6-00119-614	FT82-77	Iron Powder Core
43.	Z 0	0-00025-005	3/8"	Lugs
44.	Z 0	0-00089-033	4"	Tie
45.	Z 0	0-00096-041	#4 SPLIT	Washer, Split
46.	Z 0	0-00111-053	1-3/4"#24B	Wire #24 UL1007 Strip 1/4x1/4 Tin
47.	Z 0	0-00153-057	GROMMET2	Grommet
48.	Z 0	0-00187-021	4-40X1/4PP	Screw, Panhead Phillips
49.	Z 0	0-00225-052	17" #22 BLACK	Wire #22 UL1007
50.	Z 0	0-00226-052	17" #22 WHITE	Wire #22 UL1007
51.	Z 0	0-00228-052	17" #22 GREEN	Wire #22 UL1007
52.	Z 0	0-00259-021	4-40X1/2"PP	Screw, Panhead Phillips
53.	Z 0	0-00285-055	HV 2"	Wire, Other
54.	Z 0	0-00331-031	4-40X5/8 F/F	Standoff
55.	Z 0	0-00407-032	SOLDR SLV RG174	Termination
56.	Z 0	7-00219-720	PS300-43	Fabricated Part
57.	Z 0	7-00220-720	PS300-44	Fabricated Part
58.	Z 0	9-00185-917	DANGER	Product Labels

Miscellaneous and Chassis Assembly Parts List

No.	REF.	SRS part #	VALUE	DESCRIPTION
1.	U 502	3-00305-342	8KX8-250	EPROM/PROM, I.C.
2.	U 601	3-00645-340	NAT9914BPD	Integrated Circuit (Thru-hole Pkg)
3.	U 602	3-00078-340	DS75160A	Integrated Circuit (Thru-hole Pkg)
4.	U 603	3-00079-340	DS75161A	Integrated Circuit (Thru-hole Pkg)
5.	Z 0	0-00150-026	4-40X1/4PF	Screw, Black, All Types
6.	Z 0	0-00179-000	RIGHT FOOT	Hardware, Misc.
7.	Z 0	0-00180-000	LEFT FOOT	Hardware, Misc.
8.	Z 0	0-00185-021	6-32X3/8PP	Screw, Panhead Phillips
9.	Z 0	0-00204-000	REAR FOOT	Hardware, Misc.
10.	Z 0	0-00247-026	6-32X1/4 TRUSSP	Screw, Black, All Types
11.	Z 0	0-00248-026	10-32X3/8TRUSSP	Screw, Black, All Types
12.	Z 0	0-00315-021	6-32X7/16 PP	Screw, Panhead Phillips
13.	Z 0	0-00351-029	4-40X1/4TRUSSPH	Screw, Truss Phillips
14.	Z 0	0-00396-000	BE CU / DDS	Hardware, Misc.
15.	Z 0	7-00122-720	DG535-36	Fabricated Part
16.	Z 0	7-00189-720	PS300-33	Fabricated Part
17.	Z 0	7-00217-735	PS300-40	Injection Molded Plastic
18.	Z 0	7-00236-720	PS300-51	Fabricated Part

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