

READ THIS FIRST!

Save Time and Avoid Damage!

We realize that you will want to start installing your new equipment right away. But, you will save time and avoid costly damage by taking a few moments to review the following helpful information before you proceed.

1. Installation and Cable Connections

Before turning the power on, consult the "Installation" section of this manual to obtain specific advice about cable connections, switch settings and jumper configurations.

2. Operation

See the "Operation" section for proper use of your new equipment.

3. Calibration

All Ross Video Terminal Equipment is factory calibrated. Adjustment of sealed calibration components or any repairs to this unit, are to be performed by an authorized Ross Video technician. Unauthorized repairs will void your Warranty.

In Case of Problems

If you encounter any problems with the installation of this unit, please call our Customer Service Department at (613) 652-4886, 24 hours a day, 7 days a week.

Advice is available, without charge, for the life of this equipment, not just for the warranty period.

Section 4

PS 7558

Power Supply

Issue 5 & 6

PS 7558 • Power Supply – User's Manual

- Ross Part Number: **AM-7558-06**
- Document Issue: **6**
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Company Address



Ross Video Limited
8 John Street
Iroquois, Ontario, K0E 1K0
Canada

Ross Video Incorporated
P.O. Box 880
Ogdensburg, New York
USA 13669-0880

General Business Office: (+1) 613 • 652 • 4886

Fax: (+1) 613 • 652 • 4425

Customer Service: (+1) 613 • 652 • 4886

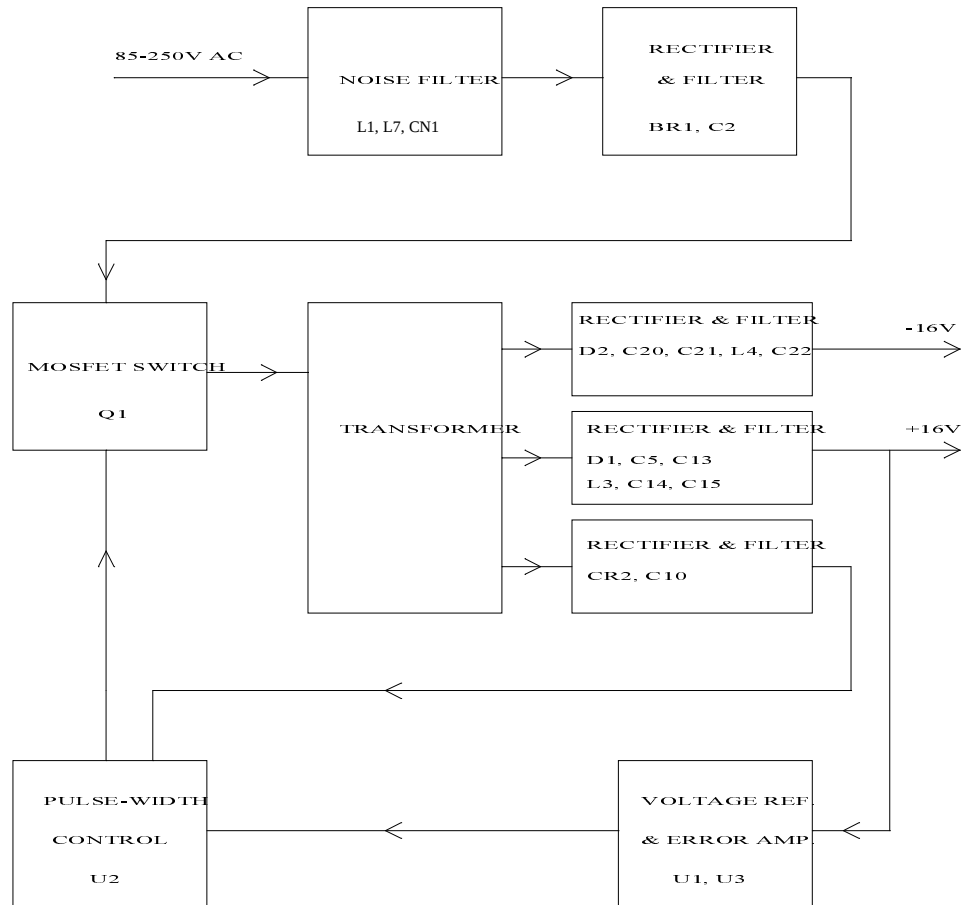
E-mail (Customer Support): tech-support@hq.rossvideo.com

E-mail (General Information): solutions@rossvideo.com

Website: <http://www.rossvideo.com>

After hours emergency: (+1) 613 • 652 • 4886, ext. 333

PS 7558 BLOCK DIAGRAM



Introduction

The PS-7558 power supply is designed to provide power to modules in the Ross audio tray. It operates equally well on any of the world's power mains voltages. When two supplies are operated in a tray, they provide redundancy protection against supply or power source failure. In addition, reliability is increased as each supply will provide half of the tray load current and will run cooler. The power switch and fuse are conveniently accessible from the front of the supply. A lens on the tray door is illuminated by a green LED on the supply during normal operation.

NOTE:

This power supply must be serviced only at the factory because of the hazardous high voltages and currents that are present internally, as well as the possibility of disturbing special precautions needed to minimize electromagnetic radiation. An extender board or other test means is not available.

Circuit Description

Filtering of common-mode noise is provided by L1, L7 and CN1. The input voltage is rectified and filtered by BR1 and C2.

U2 is a switch-mode controller. It provides the functions of an oscillator, driver for the switching power transistor Q1, over-current limiter and voltage control. Zener diodes CR3, CR4, CR6 and CR8 protect Q1 against damage from high-voltage spikes.

Transformer T1 secondary voltage is rectified and filtered by CR2, C10 and C16 to provide the DC supply voltage for U2. The positive secondary voltage is rectified and filtered by D1, C5, C13, L3, C14 and C15. The negative output voltage is obtained from similar circuit D2, etc.

Control circuit U1 regulates the output voltage. It contains an internal precision voltage reference and error amplifier. Any error in output voltage is fed to opto-isolator U3 which then corrects the width of the switching pulse generated by control circuit U2.

Adjustment

The only adjustment is RV1 which is set in the factory for exactly +16.0 volts, as measured on the tray mother board at the power supply edge connector. It has been factory-adjusted and sealed, using a full 1.4A load in a special test jig. It is absolutely essential that RV1 be set precisely under these conditions or correct load sharing will not occur when the tray has two supplies.

Specifications

Input	Voltage	85-250 Volts, 50/60 Hz
	Power	55 VA max
Output	Voltage	±16.0 V
	Current	1.4 A
	Power	45 W
	Line Regulation	350 mV change over full input range
	Ripple	<60 mV pp

PS 7558

Bill of Materials

8101A-001E

Item	QTY	REF	Part	Description	Part Number
1	1	J1	CON\30P\156\E	NOT A BOUGHT PART	-----
2	1	R28	NVR	NO VALUE,RES,5%	-----
3	1	R22	NVR R1/2W UP	NO VALUE,RES,VERTICAL,MNT	-----
4	1	SCKTDS1	125-001	HOLDER,LED,5MM,90DEG	125-001
5	1	C17	n33	CAP,CER,100V,2%,n33	202-330
6	1	C9	n68	CAP,CER,n68	202-680
7	1	C7	1n	CAP,CER,1n	203-100
8	1	C19	10n	CAP,CER,10n	204-100
9	1	C3	1u 206-100	CAP,CER,50V,20%,1u0	206-100
10	1	C11	10n 210-004	CAP,FILM,400V,10%,10n	210-004
11	1	C18	10n 210-009	CAP,FILM,100V,10%,10n	210-009
12	1	CN1	210-013	CAP,NTWRK,50V,20%,u1,4n7	210-013
13	1	C8	100n 210-015	CAP,POLY,250V,100n	210-015
14	3	C15,C16,C23	100n	CAP,GLAS,100n	225-100
15	1	C10	22u 240-006	CAP,ELEC,22u	240-006
16	1	C2	180u 240-017	CAP,ELEC,400V,180u	240-017
17	6	C5,C13,C14,C20, C21,C22	560u 240-018	CAP,ELEC,35V,560u	240-018
18	1	CORD	330-002	AC,LINE/CORD	330-002
19	3	CR1,CR2,CR5	MUR180E	RECTIFIER,SWITCHMODE,POWER	360-028
20	1	BR1	RS406L	RECTIFIER,BRIDGE,4A,800V	360-029
21	1	CR7	1N4746C	DIODE,ZENER	360-030
22	2	D2,D1	MUR1620CT	RECTIFIER,ULTRA FAST RECOVERY	360-031
23	4	CR3,CR4,CR6,CR8	1N987B	DIODE,ZENER	360-032
24	1	DS1	361-023	LED,5mm,GRN,S.B	361-023
25	1	SHLDMP7	365-001	EJECTOR,PCB	365-001
26	1	F1	2A 390-005	FUSE,2.0A,250V,SLOBLO	390-005
27	2	*F3,F2	2A 390-016	FUSE,2A,125V,FAST ACTING,SUBMIN	390-016
28	1	F1 CAP	391-004	FUSE,CAP	391-004
29	1	F1 HLDR	391-006	FUSE,HOLDER,HORIZONTAL,PCB MNT	391-006
30	2	D2HEATSINK, D1HEATSINK	405-009	HEATSINK,TO-220,PCB MNT,U-SHAPE	405-009
31	1	Q1HEATSINK	405-010	HEATSINK,TO-247,SCREW MNT,HAT-SHAPE	405-010
32	1	L6	440-022	IND,TOROID,CTP3659V	440-022
33	2	L3,L4	47u 440-030	IND,47uH,TOROID,CTP4407115	440-030
34	1	L7	8u2 440-032	IND,8.2uH,TOROID,CEP4736-18	440-032
35	1	U3	MOC8101TV	ISOLATOR,OPTO,(MOC8102TV) THL	504-150
36	1	U1	TL431CLP	REGULATOR,ADJUSTABLE PREC,SHUNT THL	504-151
37	1	U2	MIC38HC42BN	REGULATOR,BICMOS,CURRENT MODE SWI THL	504-152
38	1	NUTQ1	650-012	NUT,HEX	650-012
39	1	RV1	200R 1T	TRIMPOT,1/4 DIA,1T,200R 710-003	
40	1	LABEL	7558-084-01	PS7558 COVER LABEL	7558-084-01
41	1	PCB	8101-001-05	8101 POWER SUPPLY ----- PCB	8101-001-05
42	1	COVER	8110-114-04	POWER SUPPLY COVER	8110-114-04
43	1	SHIELD	8110-115-03	POWER SUPPLY ----- SHLD	8110-115-03
44	1	R3	2K37 1%	RES,1/4W,1%,2K37	813-237
45	1	R18	2K49 1%	RES,1/4W,1%,2K49	813-249
46	1	R19	3K32 1%	RES,1/4W,1%,3K32	813-332
47	1	R14	5K23 1%	RES,1/4W,1%,5K23	813-523
48	1	R6	14K 1%	RES,1/4W,1%,14K	814-140
49	1	R7	100K 1%	RES,1/4W,1%,100K	815-100
50	2	R26,R27	1R	RES,1/2W,5%,1R	824-100
51	2	R21,R10	10R	RES,1/2W,5%,10R	825-100
52	1	R13	390R	RES,1/2W,5%,390R	826-390
53	1	R20	1K	RES,1/2W,5%,1K	827-100

PS-7558 Power Supply

Note: * only used on Issue 6
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Item	QTY	REF	Part	Description	Part Number
54	2	R15,R25	1K2	RES,1/2W,5%,1K2	827-120
55	2	R8,R16	1K5	RES,1/2W,5%,1K5	827-150
56	1	R4	10K	RES,1/2W,5%,10K	828-100
57	2	R1,R9	120K	RES,1/2W,5%,120K	829-120
58	4	R11,R12,R23,R29	1R 840-061 UP	RES,2W,5%,500V,1R,VERT MNT	840-061
59	1	R2	30K 840-062	RES,3W,5%,30K	840-062
60	1	RT1	10R 841-003	THERMISTOR,NTC,10R,SURGE,CURRENT LIM	841-003
61	1	Q1SCREW	850-005	SCREW,4-40,3/8,BIND	850-005
62	6	MP1,MP2,MP3, MP4,MP5,MP6	850-026	SCREW,4-40,5/16,BIND	850-026
63	4	WSHR11,WSHR12, WSHR23,WSHR29	870-032	SPACER,WASH-AWAY,ON-END,R1/2W,0.100	870-032
64	1	SW1	906-021	SWITCH,90DEG,3P,SPST	906-021
65	1	L1	940-020	IND,COMMON MODE,CTP3658V	940-020
66	1	T1	940-021	TRANSFORMER ----- S940-021	940-021
67	1	Q1	MTW8N60E	MOSFET,8A,600V,0.5R	950-044
68	1	HSTUBING RT1	955-005	TUBE,HEAT SHRINK,BLK,3/8DIA.,CSA/UL	955-005
69	1	HSTUBING L1	955-009	TUBE,HEAT SHRINK,BLK,1/2DIA.,CSA/UL	955-009
70	1	Q1WASHER	960-015	WASHER,SPRING,4-40	960-015

NOTES

Ross Gear Terminal Equipment • Warranty and Repair Policy

This **Ross Gear Terminal Equipment** product is warranted to be free of any defect with respect to performance, quality, reliability and workmanship for a period of **FIVE (5)** years from the date of shipment from our factory.

In the event that your **Ross Gear** product proves to be defective in any way during this warranty period, we will gladly repair or replace this piece of equipment with a unit of equal or superior performance characteristics.

Should you find that this **Ross Gear** product has failed after your warranty period has expired, we will repair your defective piece of equipment for as long as suitable replacement components are available. You, the owner, will bear any labour and/or component costs incurred in the repair or refurbishment of said equipment, beyond the **FIVE (5)** year warranty period.

Should your **Ross Gear** product be of our **Digital Terminal Equipment** product line, a power supply, or carries any surface mount devices, proves to be defective, we would ask that your piece of equipment be repaired by an authorized **Ross Video Limited** factory representative. Any attempt to repair this product by anyone other than an authorized **Ross Video Limited** factory representative, will void your warranty.

If this is a manual for a **Ross Gear** product of our **Digital Terminal Equipment** product line, a power supply, or piece of equipment which carries surface mount devices, you will find it provides all pertinent information for the safe installation and operation of your Ross Gear product.

If this is a manual for a **Ross Gear** product from our **Analog Terminal Equipment** product line, you will find it provides all pertinent information for the safe installation and operation of your **Ross Gear** product. Included in this manual if this product does not carry any surface mount devices, you will also find schematics, bills of materials and layout drawings. These are provided for your convenience, should you find it necessary to perform discretionary field repair or modifications to your **Ross Gear** product.

Ross Video Limited reserves the right to assess any modifications or repairs made by you and decide whether they fall within warranty limitations, should you decide to return your **Ross Gear** product for repair.

In no event shall **Ross Video Limited** be liable for direct, indirect, special, incidental, or consequential damages (including loss of profits) incurred by the use of this product. Implied warranties are expressly limited to the duration of this warranty.

In Case of Problems:

Should any problem arise with your **Ross Gear Terminal Equipment Product**, please contact our **Customer Service Department** at **613-652-4886**, 24 hours a day, 7 days a week.

A Return Material Authorization number (RMA) will be issued to you, as well as specific shipping instructions, should you wish our factory to repair your **Ross Gear** product. A temporary replacement, if required, will be made available for a nominal charge. Any shipping costs incurred, will be the responsibility of you, the customer. All products shipped to you from **Ross Video Limited**, will be shipped collect.

Ross Gear Terminal Equipment product advice is available without charge for the life of this equipment, not just the warranty period.