

TECHNICAL MANUAL

888-2001-893

DIGITAL INTERFACE

992-9764-522

HARRIS

T.M. No. 888-2001-893

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Returns And Exchanges

Damaged or undamaged equipment should not be returned unless written approval and a Return Authorization is received from HARRIS CORPORATION, Broadcast Systems Division. Special shipping instructions and coding will be provided to assure proper handling. Complete details regarding circumstances and reasons for return are to be included in the request for return. Custom equipment or special order equipment is not returnable. In those instances where return or exchange of equipment is at the request of the customer, or convenience of the customer, a restocking fee will be charged. All returns will be sent freight prepaid and properly insured by the customer. When communicating with HARRIS CORPORATION, Broadcast Systems Division, specify the HARRIS Order Number or Invoice Number.

Unpacking

Carefully unpack the equipment and preform a visual inspection to determine that no apparent damage was incurred during shipment. Retain the shipping materials until it has been determined that all received equipment is not damaged. Locate and retain all PACKING CHECK LISTs. Use the PACKING CHECK LIST to help locate and identify any components or assemblies which are removed for shipping and must be reinstalled. Also remove any shipping supports, straps, and packing materials prior to initial turn on.

Technical Assistance

HARRIS Technical and Troubleshooting assistance is available from HARRIS Field Service during normal business hours (8:00 AM - 5:00 PM Central Time). Emergency service is available 24 hours a day. Telephone 217/222-8200 to contact the Field Service Department or address correspondence to Field Service Department, HARRIS CORPORATION, Broadcast Systems Division, P.O. Box 4290, Quincy, Illinois 62305-4290, USA. Technical Support by e-mail: *tsupport@harris.com*. The HARRIS factory may also be contacted through a FAX facility (217/221-7096).

Replaceable Parts Service

Replacement parts are available 24 hours a day, seven days a week from the HARRIS Service Parts Department. Telephone 217/222-8200 to contact the service parts department or address correspondence to Service Parts Department, HARRIS CORPORATION, Broadcast Systems Division, P.O. Box 4290, Quincy, Illinois 62305-4290, USA. The HARRIS factory may also be contacted through a FAX facility (217/221-7096).

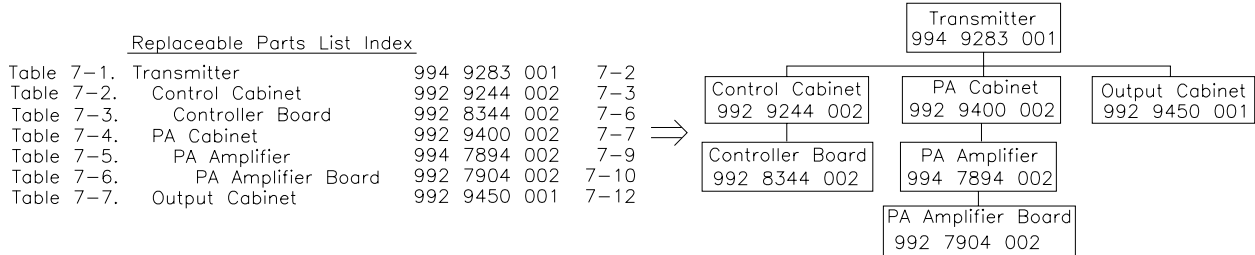
NOTE

The # symbol used in the parts list means used with (e.g. #C001 = used with C001).

Guide to Using Harris Parts List Information

The Harris Replaceable Parts List Index portrays a tree structure with the major items being leftmost in the index. The example below shows the Transmitter as the highest item in the tree structure. If you were to look at the bill of materials table for the Transmitter you would find the Control Cabinet, the PA Cabinet, and the Output Cabinet. In the Replaceable Parts List Index the Control Cabinet, PA Cabinet, and Output Cabinet show up one indentation level below the Transmitter and implies that they are used in the Transmitter. The Controller Board is indented one level below the Control Cabinet so it will show up in the bill of material for the Control Cabinet. The tree structure of this same index is shown to the right of the table and shows indentation level versus tree structure level.

Example of Replaceable Parts List Index and equivalent tree structure:



The part number of the item is shown to the right of the description as is the page in the manual where the bill for that part number starts.

Inside the actual tables, four main headings are used:

Table #-#. ITEM NAME - HARRIS PART NUMBER -this line gives the information that corresponds to the Replaceable Parts List Index entry;

HARRIS P/N column gives the ten digit Harris part number (usually in ascending order);

DESCRIPTION column gives a 25 character or less description of the part number;

REF. SYMBOLS/EXPLANATIONS column 1) gives the reference designators for the item (i.e., C001, R102, etc.) that corresponds to the number found in the schematics (C001 in a bill of material is equivalent to C1 on the schematic) or 2) gives added information or further explanation (i.e., “Used for 208V operation only,” or “Used for HT 10LS only,” etc.).

Inside the individual tables some standard conventions are used:

A # symbol in front of a component such as #C001 under the REF. SYMBOLS/EXPLANATIONS column means that this item is used on or with C001 and is not the actual part number for C001.

In the ten digit part numbers, if the last three numbers are 000, the item is a part that Harris has purchased and has not manufactured or modified. If the last three numbers are other than 000, the item is either manufactured by Harris or is purchased from a vendor and modified for use in the Harris product.

The first three digits of the ten digit part number tell which family the part number belongs to - for example, all electrolytic (can) capacitors will be in the same family (524 xxxx 000). If an electrolytic (can) capacitor is found to have a 9xx xxxx xxx part number (a number outside of the normal family of numbers), it has probably been modified in some manner at the Harris factory and will therefore show up farther down into the individual parts list (because each table is normally sorted in ascending order). Most Harris made or modified assemblies will have 9xx xxxx xxx numbers associated with them.

The term “SEE HIGHER LEVEL BILL” in the description column implies that the reference designated part number will show up in a bill that is higher in the tree structure. This is often the case for components that may be frequency determinant or voltage determinant and are called out in a higher level bill structure that is more customer dependent than the bill at a lower level.

WARNING

THE CURRENTS AND VOLTAGES IN THIS EQUIPMENT ARE DANGEROUS. PERSONNEL MUST AT ALL TIMES OBSERVE SAFETY WARNINGS, INSTRUCTIONS AND REGULATIONS.

This manual is intended as a general guide for trained and qualified personnel who are aware of the dangers inherent in handling potentially hazardous electrical/electronic circuits. It is not intended to contain a complete statement of all safety precautions which should be observed by personnel in using this or other electronic equipment.

The installation, operation, maintenance and service of this equipment involves risks both to personnel and equipment, and must be performed only by qualified personnel exercising due care. HARRIS CORPORATION shall not be responsible for injury or damage resulting from improper procedures or from the use of improperly trained or inexperienced personnel performing such tasks.

During installation and operation of this equipment, local building codes and fire protection standards must be observed. The following National Fire Protection Association (NFPA) standards are recommended as reference:

- Automatic Fire Detectors, No. 72E
- Installation, Maintenance, and Use of Portable Fire Extinguishers, No. 10
- Halogenated Fire Extinguishing Agent Systems, No. 12A

WARNING

ALWAYS DISCONNECT POWER BEFORE OPENING COVERS, DOORS, ENCLOSURES, GATES, PANELS OR SHIELDS. ALWAYS USE GROUNDING STICKS AND SHORT OUT HIGH VOLTAGE POINTS BEFORE SERVICING. NEVER MAKE INTERNAL ADJUSTMENTS, PERFORM MAINTENANCE OR SERVICE WHEN ALONE OR WHEN FATIGUED.

Do not remove, short-circuit or tamper with interlock switches on access covers, doors, enclosures, gates, panels or shields. Keep away from live circuits, know your equipment and don't take chances.

WARNING

IN CASE OF EMERGENCY ENSURE THAT POWER HAS BEEN DISCONNECTED.

WARNING

IF OIL FILLED OR ELECTROLYTIC CAPACITORS ARE UTILIZED IN YOUR EQUIPMENT, AND IF A LEAK OR BULGE IS APPARENT ON THE CAPACITOR CASE WHEN THE UNIT IS OPENED FOR SERVICE OR MAINTENANCE, ALLOW THE UNIT TO COOL DOWN BEFORE ATTEMPTING TO REMOVE THE DEFECTIVE CAPACITOR. DO NOT ATTEMPT TO SERVICE A DEFECTIVE CAPACITOR WHILE IT IS HOT DUE TO THE POSSIBILITY OF A CASE RUPTURE AND SUBSEQUENT INJURY.

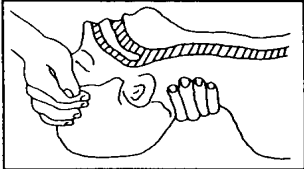
TREATMENT OF ELECTRICAL SHOCK

1. IF VICTIM IS NOT RESPONSIVE FOLLOW THE A-B-C'S OF BASIC LIFE SUPPORT.

PLACE VICTIM FLAT ON HIS BACK ON A HARD SURFACE

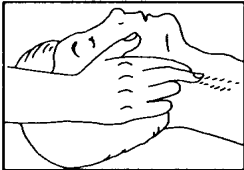
(A) AIRWAY

IF UNCONSCIOUS,
OPEN AIRWAY



LIFT UP NECK
PUSH FOREHEAD BACK
CLEAR OUT MOUTH IF NECESSARY
OBSERVE FOR BREATHING

CHECK
CAROTID PULSE



IF PULSE ABSENT,
BEGIN ARTIFICIAL
CIRCULATION

(B) BREATHING

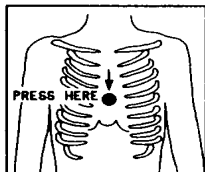
IF NOT BREATHING,
BEGIN ARTIFICIAL BREATHING



TILT HEAD
PINCH NOSTRILS
MAKE AIRTIGHT SEAL
4 QUICK FULL BREATHS
REMEMBER MOUTH TO MOUTH
RESUSCITATION MUST BE
COMMENCED AS SOON AS POSSIBLE

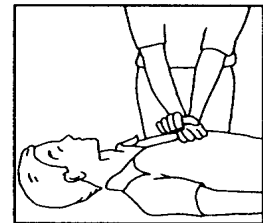
(C) CIRCULATION

DEPRESS STERNUM 1 1/2 TO 2 INCHES



APPROX. RATE
OF COMPRESSIONS { ONE RESCUER
--80 PER MINUTE { 15 COMPRESSIONS
2 QUICK BREATHS

APPROX. RATE
OF COMPRESSIONS { TWO RESCUERS
--60 PER MINUTE { 5 COMPRESSIONS
1 BREATH



NOTE: DO NOT INTERRUPT RHYTHM OF COMPRESSIONS
WHEN SECOND PERSON IS GIVING BREATH

CALL FOR MEDICAL ASSISTANCE AS SOON AS POSSIBLE.

2. IF VICTIM IS RESPONSIVE.

- KEEP THEM WARM
- KEEP THEM AS QUIET AS POSSIBLE
- LOOSEN THEIR CLOTHING
- A RECLINING POSITION IS RECOMMENDED

FIRST-AID

Personnel engaged in the installation, operation, maintenance or servicing of this equipment are urged to become familiar with first-aid theory and practices. The following information is not intended to be complete first-aid procedures, it is a brief and is only to be used as a reference. It is the duty of all personnel using the equipment to be prepared to give adequate Emergency First Aid and thereby prevent avoidable loss of life.

Treatment of Electrical Burns

1. Extensive burned and broken skin
 - a. Cover area with clean sheet or cloth. (Cleanest available cloth article.)
 - b. Do not break blisters, remove tissue, remove adhered particles of clothing, or apply any salve or ointment.
 - c. Treat victim for shock as required.
 - d. Arrange transportation to a hospital as quickly as possible.
 - e. If arms or legs are affected keep them elevated.

NOTE

If medical help will not be available within an hour and the victim is conscious and not vomiting, give him a weak solution of salt and soda: 1 level teaspoonful of salt and 1/2 level teaspoonful of baking soda to each quart of water (neither hot or cold). Allow victim to sip slowly about 4 ounces (a half of glass) over a period of 15 minutes. Discontinue fluid if vomiting occurs. (Do not give alcohol.)

2. Less severe burns - (1st & 2nd degree)
 - a. Apply cool (not ice cold) compresses using the cleanest available cloth article.
 - b. Do not break blisters, remove tissue, remove adhered particles of clothing, or apply salve or ointment.
 - c. Apply clean dry dressing if necessary.
 - d. Treat victim for shock as required.
 - e. Arrange transportation to a hospital as quickly as possible.
 - f. If arms or legs are affected keep them elevated.

REFERENCE:

ILLINOIS HEART ASSOCIATION

AMERICAN RED CROSS STANDARD FIRST AID AND PERSONAL SAFETY MANUAL (SECOND EDITION)

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1 Theory

The purpose of the Digital Interface is to Monitor the DRM Exciter and in the event of a Failure switch to the Local Audio Input and command the Transmitter to switch to the Internal Crystal/Exciter to maintain RF Operation.

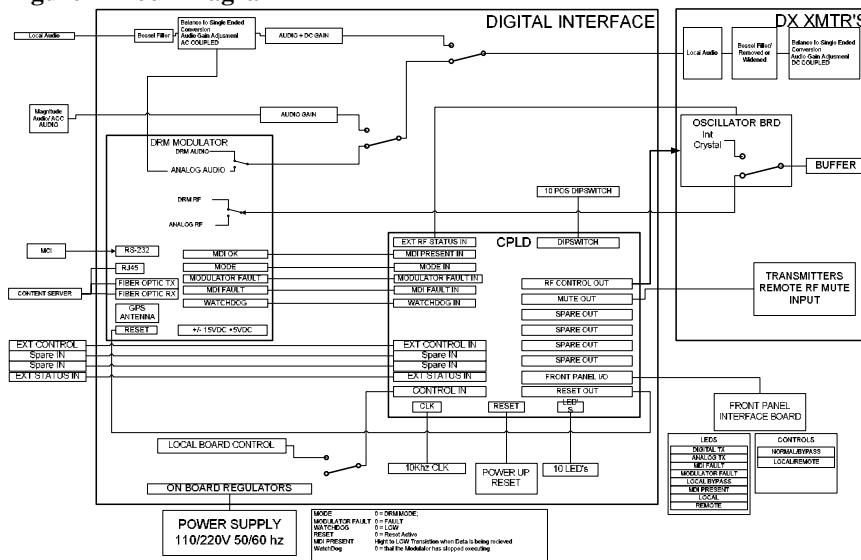
The Digital Interface can have DRM, ACC, & NORMAL AM Modulation schemes for a single transmitter.

The Digital Interface takes a Normal Audio Input and adds a DC level to the Audio to match the DRM signal. The transmitter only needs to be set up for DC coupled and widening of the Bessel Filter to accommodate the DRM Signal;

The Local audio Input and the Alternate Audio input have the ability to be DC coupled in case you have the ACC option for the transmitter.

The Digital Interface monitors the status lines of the DRM Exciter. In the event of a failure of the DRM Exciter the Digital interface will switch to the Local Audio Input to maintain RF Operation of the transmitter.

Figure 1 Block Diagram



2 Dipswitch Settings

Table 1 OPTIONS

Dipswitch	Name	Action when (ON)
2, 1		
	0, 0	5 Seconds
	0, 1	20 Seconds
	1, 0	40 Seconds
	1, 1	60 Seconds
3	ALT_AUDIO_EN	In case of a DRM Failure the Digital interface will switch to the Alternate Audio Input (ie ACC, IBOC).
4	FIXED_MODE	Select to "ON" when setting up the DRM Modulator, or if you never want it to switch to Local AUDIO.
5	EXT_RF_ALT_MODE_EN	Ext_RF Control will be Enabled when in Alternate Mode. Example: Select this for IBOC Operation.
6	UNUSED	
7	IBOC_EN	Select to "ON" when an IBOC audio is connected to the Alternate Audio Input.
8	EXT_RF_EN	Will Monitor the Transmitter EXT RF CARRIER Status. J7-11. If status is removed the Digital Interface will switch to the Local Audio Input.
9	MULTI_SW_EN	In the event of a failure of the DRM Exciter the Digital Interface will switch to an alternate Audio Input. When the DRM Exciter fault is no longer present the Digital interface will switch back to DRM Mode.
10	PEAK_DETECTOR_EN	This feature enables the circuit to look at the Audio Output and if No audio is present for a user specified time as set by dipswitch 1& 2 the Digital Interface will switch to the Next Audio Source.

3 Jumper Settings

Table 2 Jumper Settings

Jumper#	Position	Description
JP16	1-2	Audio to Channel 1 on DRM Exciter
JP17	1-2	Audio to Channel 2 on DRM Exciter
JP3, JP5	1-2	Local Audio Input set to 600 ohm termination
JP13, JP10	1-2	Local Audio Input Audio DC Coupled
JP4, JP6	1-2	Alternate Audio Input 600 ohm termination
JP14, JP11	1-2	Alternate Audio Input Audio DC Coupled
JP8	1-2	External Volts required on J7-24 for pull-ups on J7 Outputs
JP12	1-2	External Volts required for Common side of opto-isolators for J7 inputs
JP1	1-2	+VDC to activate J7-12 Ext_In1
JP2	1-2	-VDC (ground) to Active J7-13 Ext_In1
JP17	1-2	External Volts Required on J10-20 for pull-ups on J10 Outputs

4 Pot Settings

Pot settings Assume +10dBm input to the Local Audio Input Connector J5

And the DRM exciter has already been setup.

Bypass selection on the Front panel must be enabled.

Transmitter is OFF

Table 3 Pot Settings

Pot #	Level	Description
R79	Adjust R79 for 7.00Vp-p at TP17	Local Audio Gain Adjustment
	Set Modulator to BYPASS MODE and set Dipswitch #4 to ON: this puts the Modulator in FIXED DRM MODE. Set MCI Software to TEST MODE with 98% Modulation	
R100/ R80	Adjust R100 and R80 until the Waveform at TP12 is the same when selecting Dipswitch #4 to ON/OFF	DRM Audio Input Audio Matchup
	R100 adjusts the DC BIAS and R80 adjusts the AUDIO+DC	
R53	Adjust R53 for the same Volts Peak-to-Peak value at TP11/TP12	Alternate Audio Adjustment
	Input Audio for the Alternate Audio Input will need to have Audio+DC to use as another backup audio Option	

NOTE:

Any change in the clipping ratio or DC Bias setting on the MCI software will result in a different Carrier level when the DRM Content Server is set to AM Mode. You will need to readjust the above settings if you want the Carrier level to be the same in the different modes

5 Normal Operation

Table 4 LED Description

LED #	Description
DS1	Transmitter is operating in Digital Audio Mode
DS2	Transmitter is operating in Normal Analog Audio Mode
DS3	MDI (Multiplexed Distribution Interface) has failed
DS4	The DRM MODULATOR has failed
DS5	The Transmitter is Operating in Bypass Analog Audio Mode
DS6	Data is being transmitted to the DRM Exciter via the Content Server
DS7	The transmitter is muted due to the switching of mode
DS8	Peak Audio Detector Timeout Fault
DS9	Transmitter is operating in Alternate Audio Mode
DS10	The Digital Interface is in Local Control

6 Connections

6.1 Content Server

Connects to J3, Fiber Optic or Ethernet on the Rear of the Panel.

The Content Server converts the Audio to the DRM Protocol.

When the Content Server is communicating with the DRM Exciter the MDI LED will be Enabled and the MDI Fault LED will be extinguished on the front panel.

6.2 MCI Interface

Connects to J4 on the rear Panel

The MCI Interface is used in the setup of the DRM Exciter. Connect a computer with the MCI software and make the adjustments with the software to achieve the best Quality DRM Signal.

6.3 External Connections

J7-	Description	Input/Output
-1	Ext RF Carrier	OUTPUT
-2	Configurable output changes with Ext RF Carrier Selec CMD	OUTPUT
-3	Mute Out Active Low	OUTPUT
-4	Digital/Analog Transmission (Low = Digital)	OUTPUT
-5	MDI Fault	OUTPUT
-6	MODULATOR Fault	OUTPUT
-7	MDI Status (Low = OK)	OUTPUT
-8	Bypass Mode Status (Low = Bypass Active)	OUTPUT
-9	Alternate Mode Status (Low = Active)	
-10	GROUND	
-11	Transmitter status of operating with External RF Carrier Input	INPUT
-12	+Vdc to Enable DRM Mode	INPUT
-13	Ground to Enable Remote Bypass Mode	INPUT
-14	Ground to Enable Remote Normal Mode	INPUT
-15	Ground to Enable Remote Alternate Mode	INPUT
-16	Ground to Enable Ext Channel 4	INPUT
-17	Ground to Enable Ext Channel 5	INPUT
-18	Ground to Enable Ext Channel 6	INPUT
-19	Ground to Enable Ext Channel 7	INPUT
-20	LOCAL SWITCH COMMON	
-21	LOCAL SWITCH NC (Normal Operation)	
-22	LOCAL SWITCH NO (Bypass Operation)	
-23	J7_VCC Common on Inputs	
-24	J7 VCC Common on Outputs	
-25	NC	

6.4 RF OUT

Connect to RF Out On the rear panel this is the Phase Modulated RF signal that drives the Transmitter

6.5 RF FWD (for future use)

Connects to RF FWD

This is used as a RF Fwd sample to drive a FEED Back circuit

6.6 RF REF (for future use)

Connects to RF Ref

This is the Feedback sample used to adapt the DRM Signal Automatically.

6.7 GPS (for future use)

Connects to GPS IN

This is the GPS Antenna Connection for the DRM Exciter.

6.8 Alternate Audio

This is another Audio input to the Digital Interface. If the Dipswitch #3 is set to ON then in the event of a failure with the DRM Exciter or by Remote command the Digital interface will switch to the Alternate Audio Input.

6.8.1 Example ACC+ Connected to Alternate Audio Input .

When the ACC+ assembly is connected to the Alternate Audio Input on the Digital Interface the Audio+DC gain will need to be adjusted on the ACC+ Board so when the Digital Interface is in the Bypass Mode or Alternate Mode the DC level is the same.

With a DMM placed on TP2 on the Digital Interface. Record what the DC level is when in Normal Mode and the Content Server is in MODE 20.

Select ACC mode via the Remote control input to switch the Digital Interface to Alternate XMSN. Adjust R53 full CW. (ACC+ assembly must be in BYPASS mode) Adjust the Audio +DC on the ACC+ Assembly until the DC level is the same.

Note the DC level should be the same value when the Digital interface is in Normal, Alternate, and/or Bypass modes

7 DRM INTERFACE OPERATION

7.1 DRM INTLK

The Digital Interface detects that a DRM Exciter is connected by the Intlk signal. The Digital interface sends a low signal out via Q18, R186 to the DRM Exciter and it has a loop thru signal and passes it back to TP42. When TP42 is LOW then a DRM exciter is connected to the system.

7.2 DRM RST

The RST line at this time is not used in the Digital Interface Logic.

7.3 DRM WDOG

The WDOG Watch Dog circuit, when in operation, is a 400ms pulse signal. The Digital interface has an internal timer that counts from 0 to 4 seconds. The WDOG input resets this timer. If the timer reaches 4 seconds then the digital interface will make a switch to a different Audio Source to the Transmitter.

7.4 DRM MDI_F

This signal will go low when there is no communication between the DRM Exciter and the Content Server. IF this signal goes Low the digital interface will make a switch to a different Audio Source to the Transmitter.

7.5 DRM MDI_OK

This signal represent the MDI data between the Content Server and the DRM Exciter. It changes pulse widths depending on the Mode that is selected by the MCI Software. The Digital interface has an internal Timer that counts from 0 to 2 seconds. The MDI_OK input resets this timer. If the timer reaches 2 seconds then the MDI Status LED on the Front panel/Remote Status will be disabled.

7.6 DRM MODE_0, MODE_1, MODE_2

This is a 3 Bit combination from the DRM Exciter to tell the Digital Interface what mode it is in. For example when MODE_0 is low this represents that the DRM Exciter is in DRM Mode. When it is High this represents the DRM Exciter is in AM MODE. This signal tells the Digital interface that it needs to switch to a different Audio Source for AM MODE. In AM Mode the Transmitter uses the RF signal from the DRM Exciter but uses the AUDIO from the Local Audio Input on the Rear of the Assembly.

7.7 DRM SP1

Spare input not used at this time.

7.8 DRM EXT_MODE

This is an Input to the DRM Exciter to tell it what mode to go in. If the Front panel Bypass mode is selected then a Low signal will be sent to the DRM Exciter telling it to go to AM MODE. This signal will also go Low when in the Alternate Audio Mode.

Section VI Parts List

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Table 2-1. ASSY, DRM MODULATOR - 992 9764 522 (B)

<i>Harris PN</i>	<i>Description</i>	<i>QTY</i>	<i>UM</i>	<i>Reference Designators</i>
250 0274 000	CORD, AC, 3C, NEMA/IEC PLUG	1	EA	
2500601020A	*CABLE, RIBBON, 20C 30AWG	1	FT	
250 0601 050	CABLE, RIBBON, 50C 30AWG	1	FT	
2520004000A	*WIRE, STRD 18AWG YELLOW	2	FT	AC FLTR TO PS
354 0669 000	TERM 250 FEM RED 22-18	4	EA	AC TO FLTR AN PS GND
354 0689 000	TERM, 18-24 AWG CRIMP	2	EA	AC WIRES TO PS
358 1214 000	SCREWLOCK, FEMALE	3	EA	
358 3728 000	ACCESSORIES, SLIDE RACK MTG	1	PR	
398 0487 000	FUSE, SLOW CART .5A 250V	2	EA	
458 0003 000	*SLIDES, DRAWER PAIR, 12"	1	PR	
484 0446 000	*FILTER, RFI POWER LINE ENTRY	1	EA	
612 1362 000	RECP 6C 1ROW STRAIGHT	2	EA	PS CABLE
612 1502 000	RECEPTACLE, 20COND, 0.025 RBN	2	EA	
612 2114 000	PLUG, 50C 2 ROW STRAIGHT	2	EA	
646 1301 201	LABEL, DANGER HI VOLTAGE	1		
736 0292 000	PSU, SWITCHING, TRIPLE OUTPUT	1	EA	
901 0121 031	PWA, DIGITAL INTERFACE	1	EA	
901 0121 051	PWA, DRM MODULATOR FRONT PANEL	1	EA	
943 5578 025	CHASSIS, DRM MODULATOR	1	EA	
943 5578 026	COVER, P/S	1	EA	
943 5578 027	FRONT PANEL DRM MODULATOR	1	EA	
943 5578 028	TOP COVER DRM, MODULATOR	1	EA	
943 5578 030	COVER PLATE BACK PNL, DRM MODULATOR	1	EA	

Table 2-2. PWA, DIGITAL INTERFACE - 901 0121 031 (B)

<i>Harris PN</i>	<i>Description</i>	<i>QTY</i>	<i>UM</i>	<i>Reference Designators</i>
393 0046 000	IC, XC95108 PROG/ESD	1	EA	U28
492 0881 000	CHOKE, 10MH +/- 20%	4	EA	L1,L2,L3,L4
566 0037 000	CONVERTER, DC/DC 5V .75W ESD	3	EA	U5,U6,U35
610 0900 000	HEADER 3 CKT STRAIGHT	17	EA	JP1,JP2,JP3,JP4,JP5,JP6,JP7,JP8,JP9,JP10,JP11,JP12,JP13,JP14,JP15,JP16,JP17
610 0994 000	CONN, XLR 3-C NC3MD-H-BAG	1	EA	J8
610 1145 000	HDR, 6PIN, 1ROW, STRT,POL	1	EA	J2
610 1287 000	HEADER, VERT, 20 POS	1	EA	J10
610 1360 000	HDR, 50C 2 ROW VERTICAL	1	EA	J1
610 1480 000	PLUG/PLUG, D, 9C/9C, METAL	1	EA	J3
612 1209 000	CONN, XLR 3-C NC3FD-H	2	EA	J5,J6
612 1499 003	D RECP 25C RT ANG METAL	1	EA	J7
801 0121 031	SCH. DIGITAL INTERFACE	0		
901 0121 032	PWA, DIGITAL INTERFACE, SMT	1	EA	

Table 2-3. PWA, DIGITAL INTERFACE, SMT - 901 0121 032 (C)

<i>Harris PN</i>	<i>Description</i>	<i>QTY</i>	<i>UM</i>	<i>Reference Designators</i>
381 0029 000	N-MOSFET, 2N7002 SMT ESD	20	EA	Q1,Q2,Q3,Q4,Q5,Q6,Q7,Q8,Q9,Q10,Q11,Q12,Q13,Q14,Q15,Q16,Q17,Q18,Q19,Q20
383 0140 000	IC, DG419 SPDT SWITCH ESD	2	EA	U7,U19
383 0165 000	IC, LM339 DQUAD COMPAR ESD	1	EA	U1
383 0244 000	IC ILD206 OPTO-COUPLER ESD	14	EA	U8,U9,U10,U11,U12,U13,U14,U15,U22,U23,U24,U25,U26,U27
383 0277 001	IC LM4040CIM3-4.1 ESD	1	EA	CR36
383 0431 000	IC OPA2227 ESD	4	EA	U2,U3,U17,U18
383 0445 000	IC AD620 ESD	2	EA	U4,U16
383 0475 000	IC 74HCT14 ESD	4	EA	U20,U21,U33,U34
383 0524 000	IC, LM2990S-12 ESD	1	EA	U29
383 0570 000	IC, 2940 +12V REG ESD	1	EA	U31
383 0690 000	IC, 74HC4060 ESD	1	EA	U30
383 0884 000	IC, DS1232LPS-2N ESD	1	EA	U32
385 0001 000	DIODE, RECT 4148 / 914 ESD	40	EA	CR2,CR3,CR4,CR5,CR6,CR7,CR8,CR9,CR10,CR11,CR12,CR13,CR14,CR15,CR16,CR17,CR18,CR19,CR20,CR21,CR22,CR23,CR32,CR33,CR38,CR39,CR40,CR41,CR42,CR43,CR44,CR45,CR55,CR56,CR57,CR58,CR59,CR60,CR61,CR62
385 0012 000	DIODE, SCHOTTKY MBR0520 ESD	2	EA	CR37,CR54
385 0027 000	DIODE, 2800 SCHOTTKY SMT ESD	2	EA	CR34,CR35
387 0001 024	DIODE, TVS 30V 600W ESD	18	EA	CR24,CR25,CR26,CR27,CR28,CR29,CR30,CR46,CR47,CR48,CR49,CR50,CR51,CR52,CR53,CR64,CR65,CR66
387 0007 024	DIODE, TVS 30V 600W ESD	3	EA	CR1,CR31,CR63
389 0010 001	LED, RED, 1.4MM RECT ESD	4	EA	DS3,DS4,DS7,DS8
389 0010 002	LED, GRN, 1.4MM RECT ESD	10	EA	DS1,DS2,DS5,DS6,DS9,DS10,DS11,DS12,DS13,DS14
404 0890 000	SOCKET, PLCC-84, SMT	1	EA	X0U28
496 0114 000	IND, POWER 250UH 20%	2	EA	T1,T2
515 0134 209	CAP 220PF 100V 5% 0805 C0G	4	EA	C4,C5,C10,C21
515 0134 219	CAP 560PF 100V 5% 0805 C0G	1	EA	C46
515 0136 401	CAP 0.01UF 100V 10% 0805 X7R	12	EA	

					C11,C12,C13,C14,C15,C16,C23,C24,C57,C58,C59,C60
515 0136 501	CAP 0.1UF 50V 10% 0805 X7R	28	EA		C2,C3,C6,C9,C18,C25,C26,C27,C31,C32,C33,C36,C37,C39,C40,C41,C43,C44,C45,C48,C49,C51,C52,C53,C54,C62,C63,C64
515 0137 601	CAP 1UF 25V 10% 1206 X7R	2	EA		C8,C38
515 0138 601	CAP 1UF 50V 20% 1812 X7R	4	EA		C7,C19,C20,C22
523 0002 117	CAP 47UF 25V 20% SMT	10	EA		C17,C29,C30,C35,C47,C50,C56,C61,C65,C66
523 0002 201	CAP 100UF 25V 20% SMT	8	EA		C1,C28,C34,C42,C55,C67,C68,C69
540 1568 000	RES NETWORK, 10K OHM 5% SMT	2	EA		R103,R120
545 0308 115	RES 39.2 OHM 1% 0.1W 0805	2	EA		R1,R2
545 0308 201	RES 100 OHM 1% 0.1W 0805	2	EA		R99,R102
545 0308 205	RES 150 OHM 1% 0.1W 0805	25	EA		R3,R4,R5,R6,R10,R11,R12,R13,R14,R15,R42,R43,R75,R76,R77,R78,R88,R136,R137,R138,R139,R163,R164,R165,R166
545 0308 212	RES 301 OHM 1% 0.1W 0805	4	EA		R7,R8,R29,R48
545 0308 221	RES 681 OHM 1% 0.1W 0805	1	EA		R188
545 0308 301	RES 1K OHM 1% 0.1W 0805	34	EA		R9,R27,R30,R81,R84,R91,R92,R93,R94,R95,R96,R97,R98,R104,R117,R118,R119,R121,R122,R123,R124,R125,R128,R129,R130,R131,R132,R133,R134,R135,R140,R143,R154,R170
545 0308 305	RES 1.5K OHM 1% 0.1W 0805	3	EA		R82,R144,R169
545 0308 313	RES 3.32K OHM 1% 0.1W 0805	1	EA		R90
545 0308 315	RES 3.92K OHM 1% 0.1W 0805	1	EA		R127
545 0308 318	RES 5.11K OHM 1% 0.1W 0805	23	EA		R58,R67,R68,R69,R70,R71,R72,R73,R74,R113,R114,R115,R116,R146,R147,R148,R149,R150,R151,R180,R181,R182,R183
545 0308 323	RES 8.25K OHM 1% 0.1W 0805	1	EA		R126
545 0308 401	RES 10K OHM 1% 0.1W 0805	56	EA		R16,R17,R18,R19,R20,R21,R22,R23,R24,R25,R26,R28,R32,R34,R44,R45,R46,R51,R52,R54,R55,R56,R59,R60,R61,R62,R63,R64,R83,R85,R86,R87,R101,R105,R106,R107,R108,R109,R110,R111,R112,R145,R167,R168,R171,R172,R173,R174,R175,R176,R177,R178,R184,R185,R190,R191
545 0308 601	RES 1MEG OHM 1% 0.1W 0805	6	EA		R33,R49,R57,R65,R66,R89
545 0309 101	RES 10 OHM 1% 1/4W 1206	18	EA		R35,R36,R37,R38,R39,R40,R41,R155,R156,R157,R158,R159,R160,R161,R162,R186,R187,R192
551 0017 305	TRIMPOT 5K OHM 1/4W 4MM SQ	1	EA		R80
551 0017 401	TRIMPOT 10K OHM 1/4W 4MM SQ	1	EA		R100
551 0017 602	TRIMPOT 2MEG OHM 1/4W 4MM SQ	2	EA		R53,R79
561 0002 003	POSISTOR 0.2 AMP 30VDC 1812	4	EA		R31,R47,R50,R189
561 0002 011	POSISTOR 1.1 AMP 6VDC 1812	4	EA		R141,R142,R152,R153
561 0004 018	POSISTOR 2.5 AMP 15VDC 3425	1	EA		R179
575 0007 000	RELAY, 5V 1 AMP DPDT SMT	1	EA		K1
603 0001 000	DIPSWITCH, 10 SPST SMT	1	EA		S2
604 1163 000	SWITCH, PB, SPST MOM, SMT	1	EA		S3
604 1201 000	SW, TGL DPDT SMT	1	EA		S1
610 1330 000	TEST POINT, LOOP, SMT	5	EA		TP051,TP052,TP055,TP056,TP057
611 0016 000	HEADER, 14C, 2MM, VERTICAL	1	EA		J9
801 0121 031	SCH. DIGITAL INTERFACE	0			
801 0121 033	PWB, DIGITAL INTERFACE	1	EA		

Table 2-4. PWA, DRM MODULATOR FRONT PANEL - 901 0121 051 (A)

<i>Harris PN</i>	<i>Description</i>	<i>QTY UM</i>		<i>Reference Designators</i>
358 2177 000	SPACER, LED MOUNT .380 LG	8	EA	XDS001,XDS002,XDS003,XDS004,XDS005,XDS006,XDS007,XDS008
384 0610 000	* LED, GREEN T-1 3/4 ESD	5	EA	DS001,DS002,DS005,DS006,DS008
384 0611 000	*LED, RED T1-3/4 ESD	3	EA	DS003,DS004,DS007
522 0550 000	CAP 100UF 25V 20%	1	EA	C003
522 0591 000	CAP 47UF 25V 20%	2	EA	C001,C002
548 2400 309	RES 1.21K OHM 1/2W 1%	8	EA	R001,R002,R003,R004,R005,R006,R007,R008
566 0036 000	CONVERTER, DC/DC 12V 1W ESD	1	EA	U001
604 1225 000	SWITCH, VERTICAL ROCKER SPDT	2	EA	S001,S002
610 1287 000	HEADER, VERT, 20 POS	1	EA	J001
801 0121 051	SCH. DRM MODULATOR, FRONT PANEL	0		
801 0121 053	PWB, DRM MODULATOR FRONT PANEL	1	EA	