



RT-20 Universal Disc Player RS-232 Control Guide

Harman Specialty Group 3 Oak Park, Bedford, MA, 01730-1413 USA
Customer Service: Telephone: 781-280-0300 | Service Fax: 781-280-0499 | www.lexicon.com

Part No. 070-17224 | Rev 0 | 03/05

Lexicon

RT-20 Universal Disc Player RS-232 Control Guide

Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories. Confidential unpublished works. © 1992-1997 Dolby Laboratories. All rights reserved.

"HDMI," the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

"DTS" and "DTS 96/24" are trademarks of Digital Theater Systems, Inc.

"SACD" and the SACD logo are trademarks of Sony Electronics, Inc.

"TosLink" is a registered trademark of Toshiba Corporation.

"Lexicon," "LOGIC7," and the L7 logo are registered trademarks of Harman International Industries, Inc. U.S. Patent Nos. D454,553; D454,860; 5,796,844; 5,870,480 and other worldwide patents issued and pending.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

© 2005 Harman Specialty Group. All rights reserved.

This document should not be construed as a commitment on the part of Harman Specialty Group. The information it contains is subject to change without notice. Harman Specialty Group assumes no responsibility for errors that may appear within this document.



3 Oak Park
Bedford, MA 01730-1413 USA
Telephone: 781-280-0300
Fax: 781-280-0490
www.lexicon.com

Customer Service

Telephone: 781-280-0300
Sales Fax: 781-280-0495
Service Fax: 781-280-0499

Product Shipments

16 Progress Road
Billerica, MA 01821-5730 USA

harman specialty group

Part No. 070-17224 | Rev 0 | 03/05

Table of Contents

1. Introduction	3
1-1. Purpose	3
1-2. References	3
2. System Description	3
2-1. Overview	3
2-2. Block Diagram	3
2-3. RT-20 RS-232 Connector Pin Definition	3
3. Detailed Description	4
3-1. Connection format	4
3-1-1. Physical connection	4
3-2. Transmission data packet formats	4
3-2-1. Transmission data packets from the HOST to the RT-20	4
3-2-1-1. Command Packets	4
3-2-1-2. Status Request Packets	4
3-2-2. Response data packets from the RT-20 to the HOST	5
3-2-2-1. ACK/NAK Response Packets	5
3-2-2-2. Auto Status Feedback Packets	5
3-3. Data Transaction Sequencing and Timing Requirements	6
3-3-1. Data Packet Transaction Sequencing Requirements	6
3-3-2. Data Transaction Timing Requirements	6
3-3-3. Specific Requirements for Auto Status Feedback	6
3-3-4. Example of the transactions	6
3-3-5. Examples of HOST/RT-20 handshaking	7
3-3-5-1. Example of successful handshaking	7
3-3-5-2. Examples of handshaking errors	7
3-4. Commands	8
3-4-1. HOST Command list	8
3-4-2. Specific Commands	10
3-5. Status Request and Status Response Data Packets	11
3-5-1. HOST Status request and Status Response/feedback list AST Layer: 1	11
3-5-2. HOST Status request and Status Response/feedback list AST Layer: 2	11
3-5-3. HOST Status request and Status Response/feedback list AST Layer: 3	12
3-5-4. Special Status request and Status Response list AST Layer: None	13
3-6. Status Feedback	14
3-7. Data Packet COMMAND List	16

1. Introduction

1-1. Purpose

This document was written as a reference specification for the Lexicon RT-20 Universal Disc Player RS-232 interface.

1-2. References

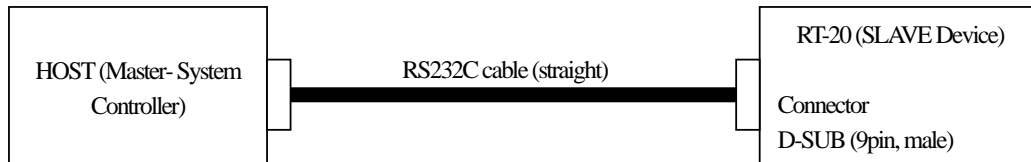
Refer to the RT-20 User Guide for information about the RS-232 connector and RT-20 functionality.
RT-20 User Guide p/n 070-17261.

2. System Description

2-1. Overview

The RT-20 RS-232 interface has been designed as a Master-Slave communication protocol, in which the RT-20 is the slave device. The Master-system controller is referred to as the HOST device.

2-2. Block Diagram



2-3. RT-20 RS-232 Connector Pin Definition

The RT-20 serial RS-232 connector is a male 9-pin D-sub connector. The pin definitions are listed below.

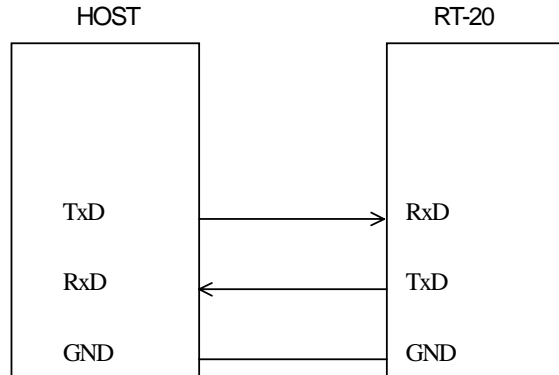
Signal name	D-Sub Pin
N.C.	1
TxD (output)	2
RxD (input)	3
N.C.	4
GND	5
N.C.	6
N.C.	7
N.C.	8
N.C.	9

3. Detailed Description

The RS-232 hardware interface specification between the HOST and the RT-20 is described below.

3-1. Connection format

3-1-1. Physical connection



(Serial Port settings)

Baud Rate : 9600bps
Data Bits : 8bit
Parity : None
Stop bit : 1bit
Handshaking : None

3-2. Transmission data packet formats

3-2-1. Transmission data packets from the HOST to the RT-20

There are two kinds of transmission data packets that are described below.

3-2-1-1. Command Packets

The Command Packets are provided for the Host Controller to request the RT-20 to perform a specific action.

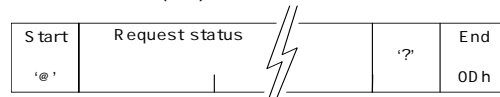
Start character : '@'
COMMAND : see "Data Packet COMMAND List" on page 16
End character (CR) : 0Dh



3-2-1-2. Status Request Packets

The Status Request packets are provided for the Host Controller to request the RT-20 to report specific operating statuses.

Start character : '@'
Request status : see "Status Request and Status Response Data Packets" on page 11
Request character : '?'
End character (CR) : 0Dh



3-2-2. Response data packets from the RT-20 to the HOST

The RT-20 can respond to the HOST in a synchronous and asynchronous mode. The two different response packets are described below.

3-2-2-1. ACK/NAK Response Packets

The RT-20 provides an ACK (acknowledge) response to the HOST when the RT-20 has received a correct command packet, and the HOST command packet has requested no other status data.

Start character : '@', ACK : 06h, End character (CR) : 0Dh

start	ACK	CR
'@'	06h	0Dh

The RT-20 will send a NAK response packet if the RT-20 has received an incorrect HOST command packet.

Start character : '@', NAK : 15h, End character (CR) : 0Dh

start	NAK	CR
'@'	15h	0Dh

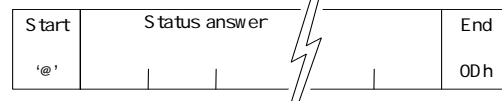
3-2-2-2. Auto Status Feedback Packets

The RT-20 will send to the HOST asynchronous status feedback data packets when applicable RT-20 status changes. The asynchronous status has been divided into levels or groups. The HOST can enable each of the status feedback groups independently.

Start character : '@'

Answer character : see "Status Feedback" on page 14

End character (CR) : 0Dh



3-3. Data Transaction Sequencing and Timing Requirements

3-3-1. Data Packet Transaction Sequencing Requirements

The RT-20/Host Data Packet Transactions can be described in one of the three following sequences:

- The HOST sends a command data packet and the RT-20 responds with an ACK or a NAK data packet.
- The HOST sends a status request data packet and the RT-20 responds with the corresponding status data packet or NAK if the request is invalid.
- The RT-20 sends an auto status feedback data packet if the corresponding RT-20 status has changed (The HOST is not required to respond to the RT-20).

3-3-2. Data Transaction Timing Requirements

Each of the HOST/RT-20 data transactions must meet the following timing requirements:

- Response packet transmission (ACK, NAK or Status) from the RT-20 will be initiated approximately within 50ms following the end of the HOST command packet and transmission will be completed within 500ms following the end of the HOST command packet.
- The HOST should not transmit a command or status request data packet until the RT-20 has responded to the previously sent command. A new command or status request data packet may be initiated if the RT-20 has been unresponsive for at least 1s.
- The RT-20 will complete an auto status feedback data packet within 500ms.

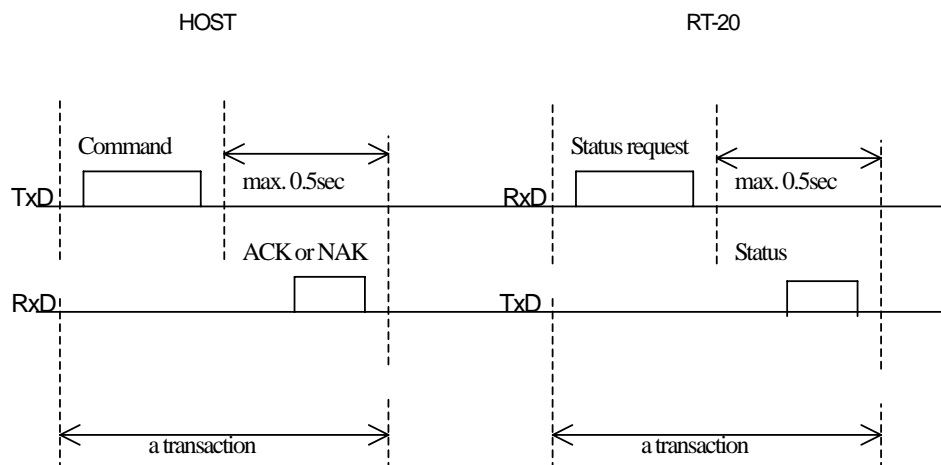
3-3-3. Specific Requirements for Auto Status Feedback

The following items detail specific requirements for the Auto Status Feedback data transactions.

The RT-20 Auto Status Feedback has been grouped into three layers: 1, 2 and 3:

- Layer 1 is the highest priority status. Layer 2 is the second highest priority. Layer 3 is assigned the lowest priority.
- Each layer is independently enabled or disabled by the HOST. The RT-20 will disable all three layers by default.
- The RT-20 initiates the Auto Status Feedback transaction when the corresponding RT-20 status has changed.

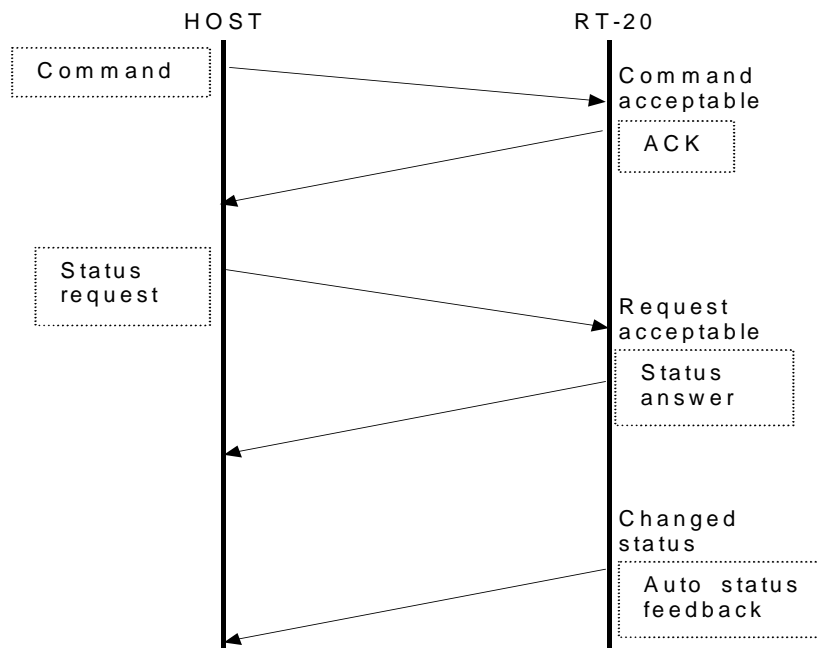
3-3-4. Example of the transactions



Example Data Packet Transactions

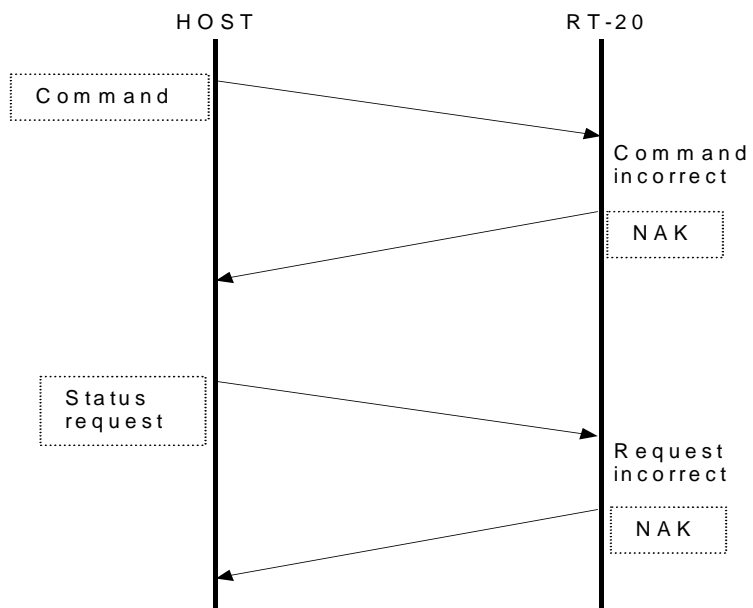
3-3-5. Examples of HOST/RT-20 handshaking

3-3-5-1. Example of successful handshaking



The RT-20 may reply with an ACK instead of requested status, if the RT-20 cannot send the requested status immediately.

3-3-5-2. Examples of handshaking errors



3-4. Commands

The following tables detail the available HOST commands.

3-4-1. HOST Command list

Command			Reply from RT-20
POWER	OFF	"PWR:1"	ACK
	ON	"PWR:2"	
TRAY	Toggle	"TRY:0"	ACK
	OPEN	"TRY:1"	
	CLOSE	"TRY:2"	
STOP		"STP:0"	ACK
PLAY		"PLY:0"	ACK
PAUSE		"PPS:0"	ACK
SLOW FWD		"PSF:0"	ACK
SLOW REV		"PSR:0"	ACK
FAST FWD		"PFF:0"	ACK
FAST REV		"PFR:0"	ACK
NEXT		"GOT:1"	ACK
PREV		"GOT:2"	ACK
STEP	Toggle	"PST:0"	ACK
SEARCH	Toggle	"SCH:0"	ACK
REPEAT	Step	"RPT:0"	ACK
A-B REPEAT	Step	"A-B:0"	ACK
PROGRAM	Toggle	"PRG:0"	ACK
RANDOM	Step	"RDM:0"	ACK
MARKER	Toggle	"MRK:0"	ACK
PAGE	+	"PAG:1"	ACK
	-	"PAG:2"	

Command			Reply from RT-20
SETUP	Toggle	"OSD:0"	ACK
TOP MENU	Toggle	"MNU:1"	ACK
MENU	Toggle	"MNU:0"	ACK
SUBTITLE		"SBT:0"	ACK
AUDIO		"AUD:0"	ACK
DISPLAY (OSD)	Toggle	"DIP:0"	ACK
DIMMER (FL/LCD)	Step	"DIM:0"	ACK
	OFF	"DIM:1"	
	DIMMER	"DIM:2"	
	ON	"DIM:3"	
CURSOR	RETURN	"CUR:0"	ACK
	UP	"CUR:1"	
	DOWN	"CUR:2"	
	LEFT	"CUR:3"	
	RIGHT	"CUR:4"	
NUMBER	0	"NUM:0"	ACK
	1	"NUM:1"	
	2	"NUM:2"	
	3	"NUM:3"	
	4	"NUM:4"	
	5	"NUM:5"	
	6	"NUM:6"	
	7	"NUM:7"	
	8	"NUM:8"	
	9	"NUM:9"	
	+10	"NUM:P"	
ENTER		"ENT:0"	ACK
CLEAR		"CLR:0"	ACK

Command			Reply from RT-20
SACD MODE	Toggle	"SCD:0"	ACK
	SACD Stereo	"SCD:1"	
	SACD Multi	"SCD:2"	
	SACD CD	"SCD:3"	
HP MODE	Toggle	"HPM:0"	ACK

Command			Reply from RT-20
TV SYSTEM	Toggle	"TVS:0"	ACK
PROGRESSIVE /INTERLACE	Toggle	"PGR:0"	ACK
ASPECT	Letter Box	"ASP:1"	ACK
	Panscan	"ASP:2"	
	Wide	"ASP:3"	
	Squeeze	"ASP:4"	
VIDEO MUTE	Toggle	"VMT:0"	ACK
	Mute OFF	"VMT:1"	
	Mute ON	"VMT:2"	
VIDEO ADJ	Toggle	"VAJ:0"	ACK
ZOOM	Toggle	"ZOM:0"	ACK

Command			Reply from RT-20
HDMI ON/OFF	Toggle	"HDM:0"	ACK
	OFF	"HDM:1"	
	ON	"HDM:2"	
HDMI RESET		"HDR:0"	ACK
CONDITION MEMORY		"CND:0"	ACK
AUTO POWER OFF	Disable	"ATP:1"	ACK
	Enable	"ATP:2"	
REMOTE CODE	DVD 1	"RC6:1"	ACK
	DVD 2	"RC6:2"	
ECO MODE	Disable	"ECO:1"	ACK
	Enable	"ECO:2"	

3-4-2. Specific Commands

Command from Host					Reply from RT-20
Auto status feedback (The RT-20 default will disable all auto status feedback.)	"AST:x" (x = '0' ~ '7') ex)"@AST:7r" (r = CR)				ACK
	'x'	Layer1	Layer2	Layer3	
	'0'	Disable.	Disable.	Disable.	
	'1'	Enable.	Disable.	Disable.	
	'2'	Disable.	Enable.	Disable.	
	'3'	Disable.	Disable.	Enable.	
	'4'	Enable.	Enable.	Disable.	
	'5'	Enable.	Disable.	Enable.	
	'6'	Disable.	Enable.	Enable.	
	'7'	Enable.	Enable.	Enable.	

3-5. Status Request and Status Response Data Packets

3-5-1. HOST Status request and Status Response/feedback list

AST Layer: 1

Status request		Status answer and feedback	
POWER	"PWR:?"	OFF	"PWR:1"
		ON	"PWR:2"
TRAY MODE	"TRY:?"	OPEN	"TRY:1"
		CLOSE	"TRY:2"
PLAY MODE	"MOD:?"	TOC (LOADING)	"MOD:0"
		STOP	"MOD:1"
		PLAY	"MOD:2"
		PAUSE	"MOD:3"
		SLOW FWD	"MOD:4"
		SLOW REV	"MOD:5"
		FAST FWD	"MOD:6"
		FAST REV	"MOD:7"
DISC	"DSC:?"	UNDEFINE	"DSC:-"
		No DISC	"DSC:0"
		CD	"DSC:1"
		VCD	"DSC:2"
		DVD-VIDEO	"DSC:3"
		DVD-AUDIO	"DSC:4"
		SACD	"DSC:5"
		MP3 / JPEG	"DSC:6"

3-5-2. HOST Status request and Status Response/feedback list

AST Layer: 2

Status request		Status answer and feedback	
REPEAT	"RPT:?"	OFF	"RPT:1"
		Track/Chapter REPEAT	"RPT:2"
		All/Group/Title REPEAT	"RPT:3"
A-B REPEAT	"A-B:?"	OFF	"A-B:1"
		SET A	"A-B:2"
		SET A-B	"A-B:3"
RANDOM	"RDM:?"	OFF	"RDM:1"
		ON	"RDM:2"

Status request		Status answer and feedback	
COUNTER	"TTL:?"	TITLE	"TTL:???"
	"GRP:?"	GROUP	"GRP:???"
	"CHP:?"	CHAPTER	"CHP:???"
	"TRK:?"	TRACK	"TRK:???"

Status request		Status answer and feedback	
DIMMER (FL/LCD)	None	OFF	"DIM:1"
		DIMMER	"DIM:2"
		ON	"DIM:3"

Status request		Status answer and feedback	
SACD MODE	"SCD:?"	SACD Stereo	"SCD:1"
		SACD Multi	"SCD:2"
		SACD CD	"SCD:3"

Status request		Status answer and feedback	
TV SYSTEM	"TVS:?"	NTSC	"TVS:1"
		PAL	"TVS:2"
		MULTI	"TVS:3"
PROGRESSIVE /INTERLACE	"PGR:?"	Progressive	"PGR:1"
		Interlace	"PGR:2"
ASPECT	"ASP:?"	Letter Box	"ASP:1"
		Panscan	"ASP:2"
		Wide	"ASP:3"
		Squeeze	"ASP:4"
VIDEO MUTE	"VMT:?"	Mute OFF	"VMT:1"
		Mute ON	"VMT:2"

Status request		Status answer and feedback	
HDMI ON/OFF	"HDM:?"	HDMI OFF	"HDM:1"
		HDMI ON	"HDM:2"
AUTO POWER OFF	"ATP:?"	Disable	"ATP:1"
		Enable	"ATP:2"
REMOTE CODE	"RC6:?"	DVD1	"RC6:1"
		DVD2	"RC6:2"
ECO MODE	"ECO:?"	Disable	"ECO:1"
		Enable	"ECO:2"

3-5-3. HOST Status request and Status Response/feedback list

AST Layer: 3

Send Slave status		example	Expected reply from Host
COUNTER	"TIM:?"	TIME (DVD, DVD-Audio)	"TIH:H.MM.SS"
		TIME (CD, SACD, MP3, VCD)	"TIM:MMM.SS"

3-5-4. Special Status request and Status Response list

AST Layer: None

Status request		Status answer and feedback			
Auto status feedback	"AST:?"	Layer1	Layer2	Layer3	send data
		Disable.	Disable.	Disable.	"AST:0"
		Enable.	Disable.	Disable.	"AST:1"
		Disable.	Enable.	Disable.	"AST:2"
		Disable.	Disable.	Enable.	"AST:3"
		Enable.	Enable.	Disable.	"AST:4"
		Enable.	Disable.	Enable.	"AST:5"
		Disable.	Enable.	Enable.	"AST:6"
		Enable.	Enable.	Enable.	"AST:7"

Status request		Status answer and feedback	
Read Version Number	"RV0:?"	RS-232C Soft Version	"VR0:???????????"
	"RV1:?"	B/E Soft Version	"VR1:???????????"
	"RV2:?"	Panel Soft Version	"VR2:???????????"
	"RV3:?"	AUDIO DSP Soft Version	"VR3:???????????"

3-6. Status Feedback

	Auto Status feedback Layer	Request	Status	Notes
A-B REPEAT	Layer2	@A-B:?x0d,	@A-B:1x0d	OFF
			@A-B:2x0d	SET A
			@A-B:3x0d	SET A-B
ASPECT	Layer2	@ASP:?x0d,	@ASP:1x0d	LetterBox
			@ASP:2x0d	Panscan
			@ASP:3x0d	Wide
			@ASP:4x0d	SQUEEZE
AutoPowerOff	Layer2	@ATP:?x0d,	@ATP:1x0d	OFF
			@ATP:2x0d	ON
REMOTE CODE	Layer2	@RC6:?x0d,	@RC6:1x0d	DVD1
			@RC6:2x0d	DVD2
EcoMode	Layer2	@ECO:?x0d,	@ECO:1x0d	OFF
			@ECO:2x0d	ON
PLAY MODE	Layer1	@MOD:?x0d	@MOD:6x0d	PLAY FAST FWD
			@MOD:7x0d	PLAY FAST REV
			@MOD:2x0d	PLAY
			@MOD:3x0d	PLAY PAUSE
			@MOD:4x0d	PLAY SLOW FWD
			@MOD:5x0d	PLAY SLOW REV
			@MOD:1x0d	STOP
			@MOD:0x0d	TOC (LOADING)
POWER	Layer1	@PWR:?x0d,	@PWR:1x0d	OFF
			@PWR:2x0d	ON
RANDOM	Layer2	@RDM:?x0d,	@RND:1x0d	OFF
			@RND:2x0d	ON1
			@RND:2x0d	ON2
REPEAT	Layer2	@RPT:0x0d,	@RPT:1x0d	OFF
			@RPT:2x0d	Rep1
			@RPT:3x0d	Rep2
			@RPT:3x0d	Rep3
S.MODE	Layer2	@SCD:?x0d,	@SCD:1x0d	SACD
			@SCD:2x0d	SACD
			@SCD:3x0d	SACDCD
TRAY	Layer1	@TRY:?x0d,	@TRY:1x0d	OPEN
			@TRY:2x0d	CLOSE
NTSC/PAL	Layer2	@TVS:?x0d,	@TVS:1x0d	NTSC
			@TVS:2x0d	PAL
			@TVS:3x0d	AUTO
VIDEO MUTE	Layer2	@VMT:?x0d,	@VMT:1x0d	OFF
			@VMT:2x0d	ON

	Auto Status feedback Layer	Request	Status	Notes
DISC	Layer1	@DSC:~x0d,	@DSC:-x0d	UNDEFINE (ERROR)
			@DSC:0x0d	NoDisc
			@DSC:1x0d	CD
			@DSC:2x0d	VCD
			@DSC:3x0d	DVD
			@DSC:4x0d	DVD Audio
			@DSC:5x0d	SACD
			@DSC:6x0d	MP3/JPEG
COUNTER	Layer2	@TTL:~x0d	@TTL:???x0d	Title
	Layer2	@GRP:~x0d	@GRP:???x0d	Group
	Layer2	@CHP:~x0d	@CHP:???x0d	Chapter
	Layer2	@TRK:~x0d	@TRK:???x0d	Track
	Layer3	@TIM:~x0d	@TIH:~.~.~.~x0d	Time
			@TIM:~.~.~.~x0d	
PROGRESSIVE/ INTERLACE	Layer2	@PGR:~x0d	@PGR:1x0d	Progressive
			@PGR:2x0d	Interlace
DIMMER (FL/LCD)	Layer2		@DIM:1x0d,	OFF
			@DIM:2x0d,	DIMMER
			@DIM:3x0d,	ON
HDMI ON/OFF	Layer2	@HDM:~x0d	@HDM:1x0d	OFF
			@HDM:2x0d	ON
Read Ver Number	AST layer	@RV0:~x0d	@VR0:~x0d	RS-232C Ver. No.
		@RV1:~x0d	@VR1:~x0d	BE Ver. No.
		@RV2:~x0d	@VR2:~x0d	Panel ucom Ver. No.
		@RV3:~x0d	@VR3:~x0d	DSP Ver. No.
Auto status feedback	AST layer	@AST:~x0d	@AST:0x0d	all layer OFF
			@AST:1x0d	layer1 ON
			@AST:2x0d	layer2 ON
			@AST:3x0d	layer3 ON
			@AST:4x0d	layer1,layer2 ON
			@AST:5x0d	layer1,layer3 ON
			@AST:6x0d	layer2,layer3 ON
			@AST:7x0d	all layer ON

3-7. Data Packet COMMAND List

	COMMAND	Notes
A-B REPEAT	@A-B:0x0d,	Step
ANGLE	@AGL:0x0d	Toggle
ASPECT	@ASP:1x0d,	LetterBox
	@ASP:2x0d	Panscan
	@ASP:3x0d	Wide
	@ASP:4x0d	SQUEEZE
AutoPowerOff	@ATP:1x0d,	OFF
	@ATP:2x0d	ON
AUDIO	@AUD:0x0d	Toggle
CLEAR	@CLR:0x0d	
CONDITION	@CND:0x0d	Toggle
RETURN CURSOR	@CUR:0x0d	RETURN
	@CUR:1x0d	UP
	@CUR:2x0d	DOWN
	@CUR:3x0d	LEFT
	@CUR:4x0d	RIGHT
DIMMER (FL/LCD)	@DIM:0x0d	Step
	@DIM:1x0d	OFF
	@DIM:2x0d	DIMMER
	@DIM:3x0d	ON
DISPLAY (OSD)	@DIP:0x0d	Toggle
REMOTE CODE	@RC6:1x0d	DVD1
	@RC6:2x0d	DVD2
EcoMode	@ECO:1x0d	OFF
	@ECO:2x0d	ON
ENTER	@ENT:0x0d	
GO TO TRACK	@GOT:1x0d	NEXT
	@GOT:2x0d	PREV
I.REPLAY SKIP	@IGT:1x0d	I.SKIP
	@IGT:2x0d	I.REPLY
MARKER	@MRK:0x0d	Toggle
MENU	@MNU:0x0d	Toggle
TOP MENU	@MNU:1x0d	Toggle
NUMBER	@NUM:0x0d	0
	@NUM:1x0d	1
	@NUM:2x0d	2
	@NUM:3x0d	3
	@NUM:4x0d	4
	@NUM:5x0d	5
	@NUM:6x0d	6
	@NUM:7x0d	7
	@NUM:8x0d	8
	@NUM:9x0d	9

	COMMAND	Notes
	@NUM:P\x0d	+10
SETUP	@OSD:0\x0d	Step
PAGE	@PAG:1\x0d	+
	@PAG:2\x0d	-
PLAY MODE	@PFF:0\x0d	PLAY FAST FWD
	@PFR:0\x0d	PLAY FAST REV
	@PLY:0\x0d	PLAY
	@PPS:0\x0d	PLAY PAUSE
	@PSF:0\x0d	PLAY SLOW FWD
	@PSR:0\x0d	PLAY SLOW REV
	@STP:0\x0d	STOP
PROGRAM	@PRG:0\x0d	Toggle
PROGRESSIVE/ INTERLACE	@PGR:0\x0d	Toggle
POWER	@PWR:1\x0d	OFF
	@PWR:2\x0d	ON
RANDOM	@RDM:0\x0d	Step
REPEAT	@RPT:0\x0d	Step
S.MODE	@SCD:0\x0d	Toggle
	@SCD:1\x0d	SACD Stereo
	@SCD:2\x0d	SACD Multi
	@SCD:3\x0d	SACDCD
SEARCH	@SCH:0\x0d	Toggle
STEP	@PST:0\x0d	Toggle
SUBTITLE	@SBT:0\x0d	Toggle
TRAY	@TRY:0\x0d	Toggle
	@TRY:1\x0d	OPEN
	@TRY:2\x0d	CLOSE
NTSC/PAL/AUTO	@TVS:0\x0d	Toggle
VIDEO ADJ	@VAJ:0\x0d	Toggle
VIDEO MUTE	@VMT:0\x0d	Toggle
	@VMT:1\x0d	OFF
	@VMT:2\x0d	ON
ZOOM	@ZOM:0\x0d	Toggle
INFORMATION	@INF:0\x0d	Toggle
HDMI ON/OFF	@HDM:0\x0d	Toggle
	@HDM:1\x0d	OFF
	@HDM:2\x0d	ON
HDMI RESET	@HDR:0\x0d	RESET

	COMMAND	Notes
Auto status feedback	@AST:0x0d	all layer OFF
@AST:7x0d	@AST:1x0d	layer1 ON
	@AST:2x0d	layer2 ON
	@AST:3x0d	layer3 ON
	@AST:4x0d	layer1,layer2 ON
	@AST:5x0d	layer1,layer3 ON
	@AST:6x0d	layer2,layer3 ON
	@AST:7x0d	all layer ON



Harman Specialty Group 3 Oak Park, Bedford, MA, 01730-1413 USA
Customer Service: Telephone: 781-280-0300 | Service Fax: 781-280-0499 | www.lexicon.com

Part No. 070-17224 | Rev 0 | 03/05