



TASCAM DV-RA1000HD

CONTROL I/O Terminals
RS-232C Protocol Specifications

Ver. 1.00
October 2007

TEAC

1. Overview

The DV-RA1000HD (here referred to as “controlled device”) functions can be controlled using a serial RS-232C connection from an external device, such as a computer. Such a device is referred to here as the “external controller”.

2. Specifications

Electrical Specifications

Conforms to standard	JIS X-5101 (equivalent to former JIS-C-6361 and EIA RS-232C standards) Note that this is not compatible with the RS-422 used in professional VTR units.
Impedance at receiver	When measured with an applied voltage of between +/-3 V and +/-15 V, the DC resistance is between 3 kohm and 7 kohm. Total load capacitance of < 2500 pF
Open circuit voltage at transmitter	< 25V
Open circuit voltage at receiver	< 2V
Signal voltage	When the open circuit voltage at the receiver is 0 V, the signal voltage is between +/-5 V and +/-15 V against a load impedance of between 3 kohm and 7 kohm.
Signal discrimination	Logical “1” = < -3V Logical “0” = > +3V

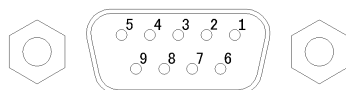
Communication format

Circuit type	3-wire, Half-duplex
Transmission type	Digital binary serial
Data speed (baud rate)	38400 bit/sec
Word length	8-bit
Parity bit	None
Stop bit	1 bit

(* Word length, parity bit, and stop bit of DV-RA1000HD are fixed.)

Connector pin-out

Connector	D-sub 9pin female (Inch screw thread)
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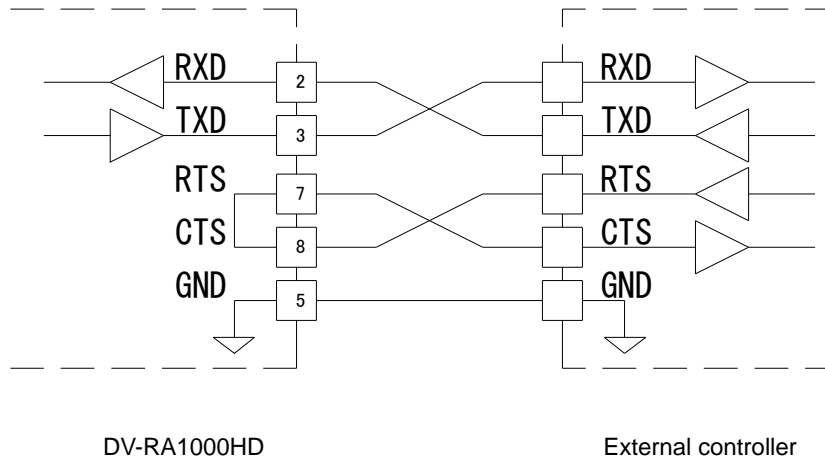


Terminal pin-out and input/output signals

Pin No.	In/Out	Signal name	Description
1	-	NC	Not connected
2	In	Rx Data	Data received at this pin *1
3	Out	Tx Data	Data transmitted from this pin
4	Out	(Reserved)	Reserved
5	-	GND	Signal ground pin
6	In	(Reserved)	Reserved
7	Out	RTS	Requested To Send *2
8	In	CTS	Clear To Send *2
9	-	NC	Not connected

*1: Impress voltage complied with RS-232C standard to Rx Data.

*2: DV-RA1000HD doesn't have RTS/CTS terminals for loop-back in this connector. Make sure the specifications of external controller and if necessary, please have the loop-back circuit outside of the DV-RA1000HD.



3. Command Format

Command Format Overview

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	...	Byte n
LF	ID	Command		Data 1	Data 2	Data 3	Data 4	...	CR

The codes described here are transmitted in ASCII format (e.g. a command described as "23" is transmitted as ASCII '2' followed by ASCII '3').

Uppercase letters are used for letters 'A' through 'F'.

All commands must be prefixed by a line-feed (LF) character [0Ah] followed by a Machine ID.

All commands are terminated by a carriage return (CR) character [0Dh].

Sample commands

Sample 1: PLAY command (Machine ID=0)

When the controlled device is in STOP/READY mode, this command starts playback.

The PLAY command is [12], and it is transmitted using the following sequence:

		ID	Command		
ASCII	LF	0	1	2	CR
HEX	0Ah	30h	31h	32h	0Dh

Sample 2: Direct search for track 12 (Machine ID=0)

In order to perform this operation, "DIRECT TRACK SEARCH PRESET [23]" command is used.

The track number is also sent as a parameter (data). This is sent in four bytes, as shown below:

		ID	Command		Data: 12th track				
ASCII	LF	0	2	3	1	2	0	0	CR
HEX	0Ah	30h	31h	32h	31h	32h	30h	30h	0Dh

The four data bytes represent, in order, the following digits of the track number: the "tens" digit (1), the "units" digit (2), the "thousands" digit (0), and the "hundreds" digit (0).

Machine ID

Machine ID of this device is fixed to [0]. A command with other Machine ID than [0] is ignored.

List of Commands

Control/Preset/Sense Command		Return Command	
0F	INFORMATION REQUEST	8F	INFORMATION RETURN
10	STOP		
12	PLAY		
13	RECORD		
14	READY		
16	SHUTTLE		
18	TRAY/EJECT		
1A	TRACK SKIP		
23	DIRECT TRACK SEARCH PRESET		
25	PITCH CONTROL DATA PRESET	A5	PITCH CONTROL DATA RETURN
27	CLOCK DATA PRESET	A7	CLOCK DATA RETURN
2C	TIME SEARCH PRESET		
2E	FADE IN/OUT TIME PRESET	AE	FADE IN/OUT TIME RETURN
34	RESUME PLAY SELECT	B4	RESUME PLAY SELECT RETURN
35	PITCH CONTROL SELECT	B5	PITCH CONTROL SELECT RETURN
36	AUTO READY SELECT	B6	AUTO READY SELECT RETURN
37	REPEAT SELECT	B7	REPEAT SELECT RETURN
3B	AUTO SPACE SELECT	BB	AUTO SPACE SELECT RETURN
3C	MUTE SELECT	BC	MUTE SELECT RETURN
3E	FADE IN/OUT SELECT	BE	FADE IN/OUT SELECT RETURN
4D	SINGLE PLAY SELECT		
4E	SINGLE PLAY SENSE	CE	SINGLE PLAY SENSE RETURN
50	MECHA STATUS SENSE	D0	MECHA STATUS RETURN
55	TRACK No. SENSE	D5	TRACK No. RETURN
56	DISC STATUS SENSE	D6	DISC STATUS RETURN
57	CURRENT TRACK INFORMATION SENSE	D7	CURRENT TRACK INFORMATION RETURN
58	CURRENT TRACK TIME SENSE	D8	CURRENT TRACK TIME RETURN
59	TITLE SENSE	D9	TITLE RETURN
5D	TOTAL TRACK No./TOTAL TIME SENSE	DD	TOTAL TRACK No./TOTAL TIME RETURN
5E	PGM TOTAL TRACK No./TOTAL TIME SENSE	DE	PGM TOTAL TRACK No./TOTAL TIME RETURN
5F	KEYBOARD TYPE SENSE	DF	KEY BOARD TYPE SENSE RETURN
		F0	ERROR SENSE REQUEST
		F1	CAUTION SENSE REQUEST
		F2	ILLEGAL STATUS
		F4	POWER ON STATUS
		F6	CHANGE STATUS
78	ERROR SENSE	F8	ERROR SENSE RETURN
79	CAUTION SENSE	F9	CAUTION SENSE RETURN
7F	VENDER COMMAND	FF	VENDER COMMAND RETURN

Command Sequence

The DV-RA1000HD does not have the "ACK" command for the each transport control command and data preset command.

When a request command is transmitted from external controller to the controlled device, the controlled device sends an appropriate return command.

When the mechanism status of the controlled device is changed (i.e. from stop to play), or an error occurs, the controlled device sends a command to notify such change to the external controller.

Some samples of command sequence are described below:

Note that an interval of at least 20 ms must be left between commands.

Sample 1: Transport control (i.e. PLAY)

The controlled device is in STOP mode.

Send the transport control (PLAY) command from the external controller to the controlled device.

The controlled device starts playback and sends the CHANGE STATUS return command.

Command			Status of the controlled device
External controller		Controlled device	
			STOP
PLAY	->		Starts playback
	<-	CHANGED STATUS	Send the CHANGE STATUS return command

Sample 2: To preset a data (i.e. PITCH CONTROL DATA PRESET)

Send the PITCH CONTROL DATA PRESET command with pitch control value from the external controller to the controlled device.

The controlled device sets the pitch control data.

Command			Status of the controlled device
External controller		Controlled device	
PITCH CONTROL DATA PRESET (i.e. -1.0%)	->		Sets pitch control data to -1.0%.

Sample 3: To request the status or a data currently set (i.e. PITCH CONTROL DATA)

Send the PITCH CONTROL DATA PRESET command with request data from the external controller to the controlled device.

If the controlled device has the pitch control data, the controlled device returns the PITCH CONTROL DATA RETURN with pitch control value.

Command			Status of the controlled device
External controller		Controlled device	
PITCH CONTROL DATA PRESET (with FF)	->		
	<-	PITCH CONTROL DATA RETURN	

Sample 4: Get the status of the controlled device then go to next operation

The controlled device sends the CHANGE STATUS when the machine status is changed.

This CHANGE STATUS command is useful for checking the current machine status by using the MECHA STATUS SENSE command.

This example describes that checks the Record Ready status then starts recording.

Command		Controlled device	Status of the controlled device
External controller			
			STOP
RECORD (Record Ready)	->		
	<-	CHANGE STATUS	Send the CHANGE STATUS return command
MECHA STATUS SENSE	->		
	<-	MECHA STATUS RETURN	Send the Record Ready status
PLAY(Record)	->		
	<-	CHANGE STATUS	Send the CHANGE STATUS return command

4. Command Detail

Commands, data, and machine IDs which are described here are represented in characters (ASCII). A command is a 2-byte character, a Machine ID is a 1-byte character, and each data is a 1-byte character.

The DV-RA1000HD can have up to 99 tracks and up to 99 projects.

4-1. INFORMATION REQUEST

Requests the internal software version number of the controlled device.

Command	0F
Data	None
Return	INFORMATION RETURN [8F]

4-2. STOP

Puts the controlled device into STOP mode.

Command	10
Data	None
Return	None

4-3. PLAY

Puts the controlled device into PLAY mode.

Command	12
Data	None
Return	None

4-4. RECORD

Puts the controlled device into RECORD READY mode. When the controlled device is recording, increments the track. Adds the track mark.

Command	13
Data	2 bytes
Return	None

Data 1	Data 2	Description	Remarks
0	1	Record Ready	Puts the controlled device into RECORD READY mode. When the controlled device is recording, increments the track.
0	2	Track Mark	Adds the track mark.

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-5. READY

Puts the controlled device into READY mode.

Command	14
Data	2 bytes
Return	None

Data 1	Data 2	Description	Remarks
0	1	Ready On	

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-6. SHUTTLE

Performs the search function in SHUTTLE mode.

SHUTTLE mode is maintained until the other command such as STOP, PLAY, or READY is received.

Command 16
Data 2 bytes
Return None

Data 1	Data 2	Description	Remarks
0	0	Shuttle Forward	Searches in shuttle mode in forward direction
0	1	Shuttle Reverse	Searches in shuttle mode in backward direction

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-7. TRAY/EJECT

Ejects or load a disc.

Command 18
Data None
Return None

4-8. TRACK SKIP

Allows track selection to the previous or next start-of-track position.

The transport mode when this command is received (playing or pausing) is maintained after skipping.

Command 1A
Data 2 bytes
Return None

Data 1	Data 2	Description	Remarks
0	0	Track Skip Next	Skips to the next track.
0	1	Track Skip Previous	If the playback position is beginning of a track (within 1 sec.), skips to the start point of the previous track. If not, skips to the start point of the current track.

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-9. DIRECT TRACK SEARCH PRESET

Searches the track then play start.

Command 23
Data 4 bytes
Return None

	Description	Remarks
Data 1	Tens digit of track number	Track number Sample) 2300: Track 23
Data 2	Units digit of track number	
Data 3	Thousands digit of track number	
Data 4	Hundreds of track number	

- If the specified track number does not exist on the disc, the controlled device sends ILLEGAL [F2].

4-10. PITCH CONTROL DATA PRESET

Sets the Pitch Control value from -6.0% to +6.0% in 0.1% steps.

When this command is transmitted with request data ([FF]), the controlled device returns the PITCH CONTROL DATA RETURN command [A5].

The pitch control function is turned on and off using the PITCH CONTROL SELECT command [35].

Command 25
 Data 4 bytes or 2 bytes
 Return PITCH CONTROL DATA RETURN [A5]

Data 1	Data 2	Data 3	Data 4	Description	Remarks
N2	N3	0 1	N1	Preset %	Positive (+) value Negative (-) value N1: Tens of pitch control value N2: Units of pitch control value N3: 1 st decimal of pitch control value [Sample] 2010: -2.0%
F	F	...		Pitch Control value request	Requests the currently set the Pitch Control value

- If the specified data is out of range, the controlled device sends ILLEGAL [F2].

4-11. CLOCK DATA PRESET

Sets the date and time.

Command 27
 Data 2 bytes or 10 bytes
 Return CLOCK DATA PRESET RETURN [A7]

Data	Description	Remarks
Data 1	Tens digit of Christian era	If both Data 1 and 2 are F, sends the clock data currently set
Data 2	Units digit of Christian era	
Data 3	Tens digit of months	
Data 4	Units digit of months	
Data 5	Tens digit of days	
Data 6	Units digit of days	
Data 7	Tens digit of hours	
Data 8	Units digit of hours	
Data 9	Tens digit of minutes	
Data 10	Units digit of minutes	

- If the specified data (date or time) does not exist, the controlled device sends ILLEGAL [F2].

4-12. TIME SEARCH PRESET

Locates to the specified track and time in minutes and seconds. If the controlled device is in stop or play mode, playback will start at the specified time. If the controlled device is in ready mode, the playback position will move to the specified time, and the controlled device will enter ready mode there. The time specified must be a valid time (e.g. the track must exist on the disc).

Command 2C
Data 12 bytes
Return None

	Description	Remarks
Data 1	Tens digit of track number	[Sample] 020003001030: 2tr 03m 10s 30f Frame search can be done for DVD/HDD only
Data 2	Units digit of track number	
Data 3	Thousands digit of track number	
Data 4	Hundreds digit of track number	
Data 5	Tens digit of minutes	
Data 6	Units digit of minutes	
Data 7	Thousands digit of minutes	
Data 8	Hundreds digit of minutes	
Data 9	Tens digit of seconds	
Data 10	Units digit of seconds	
Data 11	Tens digit of frames	
Data 12	Units digit of frames	

- If the specified data (Track number and time) does not exist on the disc, the controlled device sends ILLEGAL [F2].

4-13. FADE IN/OUT TIME PRESET

Sets the fade in and out time.

When this command is transmitted with request data ([00FF] or [01FF]), the controlled device returns the FADE IN/OUT TIME RETURN command [AE].

The FADE mode is turned on and off using the FADE IN/OUT SELECT command [3E].

Command 2E
Data 4 bytes
Return FADE IN/OUT TIME RETURN [AE]

	内容	備考
Data1	00: FADE IN setting	
Data2	01: FADE OUT setting	
Data3	1 st decimal digit of Fade In/Out time	FF
Data4	2 nd decimal digit of Fade In/Out time	
Data5	Tens digit of the Fade In/Out time	
Data6	Units digit of the Fade In/Out time	

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].
- If the specified data is out of range, the controlled device sends ILLEGAL [F2].

4-14. RESUME PLAY SELECT

Turns the Resume function on and off.

When this command is transmitted with request data ([FF]), the controlled device returns the RESUME PLAY SELECT RETURN command [B4].

Command 34
Data 2 bytes
Return RESUME PLAY SELECT RETURN [B4]

Data 1	Data 2	Description	Remarks
0	2	RESUME OFF	Turns the Resume function off
0	3	RESUME ON	Turns the Resume function on
F	F	Resume mode status request	Requests the Resume mode status

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-15. PITCH CONTROL SELECT

Turns the Pitch Control mode on and off.

When this command is transmitted with request data [FF], the controlled device returns the PITCH CONTROL SELECT RETURN command [B5].

The Pitch Control value is set using the PITCH CONTROL DATA PRESET command [25].

Command 35
Data 2 bytes
Return PITCH CONTROL SELECT RETURN [B5]

Data 1	Data 2	Description	Remarks
0	0	Pitch Control Off	Turns the Pitch Control mode off
0	1	Pitch Control On	Turns the Pitch Control mode on
F	F	Pitch Control mode status request	Requests the Pitch Control mode status

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-16. AUTO READY SELECT

Turns the Auto Ready mode on and off.

When this command is transmitted with request data [FF], the controlled device returns the AUTO READY SELECT RETURN command [B6].

Command 36
Data 2 bytes
Return AUTO READY SELECT RETURN [B6]

Data 1	Data 2	Description	Remarks
0	0	Auto Ready Off	Turns the Auto Ready function off
0	1	Auto Ready On	Turns the Auto Ready function on
F	F	Auto Ready mode status request	Requests the Auto Ready mode status

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-17. REPEAT SELECT

Sets the Repeat mode.

When this command is transmitted with request data [FF], the controlled device returns the REPEAT SELECT RETURN command [B7].

Command 37
 Data 2 bytes
 Return REPEAT SELECT RETURN [B7]

Data 1	Data 2	Description	Remarks
0	0	Repeat Off	Sets the repeat mode to off
0	1	All Repeat	Sets the repeat mode to all
0	1	Single Repeat	Sets the repeat mode to single
F	F	Repeat mode status request	Requests the repeat mode status

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-18. AUTO SPASE SELECT

Turns the Auto Space mode on and off.

When this command is transmitted with request data [FF], the controlled device returns the AUTO SPACE SELECT RETURN command [B6].

Command 3B
 Data 2 bytes
 Return AUTO SPACE SELECT RETURN [BB]

Data 1	Data 2	Description	Remarks
0	0	Auto Space Off	Turns the Auto Space function off
0	1	Auto Space On	Turns the Auto Space function on
F	F	Auto Space mode status request	Requests the Auto Space mode status

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-19. MUTE SELECT

Turns the Mute mode on and off.

When this command is transmitted with request data [FF], the controlled device returns the MUTE SELECT RETURN command [BC].

Command 3C
 Data 2 bytes
 Return MUTE SELECT RETURN [BC]

Data 1	Data 2	Description	Remarks
0	0	Mute Off	Turns the Mute function off
0	1	MUte On	Turns the Mute function on
F	F	Mute mode status request	Requests the Mute mode status

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-20. FADE IN/OUT SELECT

Sets the Fade in/out mode.

When this command is transmitted with request data [FF], the controlled device returns the FADE IN/OUT SELECT RETURN command [BE].

Fade In and Out time are set using the FADE IN/OUT TIME PRESET command [2E].

Command 3E
Data 2 bytes
Return FADE IN/OUT SELECT RETURN [BE]

Data 1	Data 2	Description	Remarks
0	0	Fade In/Out mode Off	
0	2	Fade In/Out mode On	
F	F	Fade In/Out status request	Requests the Fade In/Out mode status

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-21. SIGLE PLAY SELECT

Sets the Single Play mode.

Command 4D
Data 2 bytes
Return None

Data 1	Data 2	Description	Remarks
0	0	Single Off	
0	1	Single On	

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-22. SINGLE PLAY SENSE

Requests the status of the Single Play mode.

Command 4E
Data None
Return SINGLE PLAY RETURN [CE]

4-23. MECHA STATUS SENSE

Requests the status of the mechanism.

The contents of the reply are described in the MECHA STATUS RETURN command.

Command 50
Data None
Return MECHA STATUS RETURN [D0]

4-24. TRACK No. SENSE

Requests the current track number.

Command 55
Data None
Return TRACK No. STATUS RETURN [D5]

4-25. DISC STATUS SENSE

Requests information on the presence or absence of a disc in the controlled device, what kind of disc, and whether a disc is recordable or playback-only.

The contents of the reply are described in the DISC STATUS RETURN command.

Command 56
Data None
Return DISC STATUS RETURN [D6]

4-26. CURRENT TRACK INFORMATION SENSE

Requests the elapsed time form of the current track time (play or ready modes).

Command 57
 Data None
 Return CURRENT TRACK INFORMATION RETURN [D7]

4-27. CURRENT TRACK TIME SENSE

Requests the specific form of the current track time (play or ready modes).

Command 58
 Machine ID 0
 Data 2 bytes
 Return CURRENT TRACK TIME RETURN [D8]

Data 1	Data 2	Description	Remarks
0	0	Elapsed Time	Requests the elapsed time of the track time
0	1	Remain Time	Requests the remaining time of the track time
0	2	Total elapsed Time	Requests the total elapsed time of the disc
0	3	Total Remain Time	Requests the Total remaining time of the disc

- If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

4-28. TITLE SENSE

Requests the track or project title in the DVD/HDD mode.

Requests the disc or track title in the CD mode.

Command 59
 Data 4 bytes
 Return TITLE RETURN [D9]

	Description	Remarks
Data 1	Tens digit	0000: Project or disc title 0001 – 0099: Track title
Data 2	Units digit	
Data 3	Thousands digit of months	
Data 4	Hundreds digit	

- If the specified data (date or time) is over 100, the controlled device sends ILLEGAL [F2].

4-29. TOTAL TRACK No./TOTAL TIME SENSE

Requests the total number of the tracks and the running time on a disc.

In MP3 discs, requests the total number of tracks.

Command 5D
 Data None
 Return TOTAL TRACK No./TOTAL TIME RETURN [DD]

4-30. PGM TOTAL TRACK No./TOTAL TIME SENSE

Requests the total number of the programmed tracks and the running time of the programmed tracks.

Command 5E
 Data None
 Return PGM TOTAL TRACK No./TOTAL TIME RETURN [DE]

4-31. KEYBOARD TYPE SENSE

Requests the Keyboard type setting information.

Command 5F
 Data None
 Return KEYBOARD TYPE SENSE RETURN [DF]

4-32. ERROR SENSE

Should be transmitted by the external controller on receipt of an ERROR SENSE REQUEST [F0] from the controlled device, to determine the exact error.

The contents of the reply are described in the ERROR SENSE RETURN [F8] command.

Command 78
Data None
Return ERROR SENSE RETURN [F8]

4-33. CAUTION SENSE

Should be transmitted by the external controller on receipt of an CAUTION SENSE REQUEST [F1] from the controlled device, to determine the exact error.

The contents of the reply are described in the CAUTION SENSE RETURN [F9] command.

Command 79
Data None
Return CAUTION SENSE RETURN [F9]

4-34. VENDER COMMAND

This is an exclusive command for the DV-RA1000HD.

Command 7F
Data Not fixed
Return VENDER COMMAND RETURN [FF]

Data 1	Data 2	Description	Remarks
0	0	Monitor Select	
0	1	Project Open	
0	2	Project Number Sense	
0	3	Drive Select	

MONITOR SELECT

Sets the input monitor mode.

Data 4 bytes

Data 3	Data 4	Description	Remarks
0	0	Input Monitor Off	
0	1	Input Monitor On	
F	F	Sense	Requests the current setting

PROJECT OPEN

Open a project.

Data 4 bytes

	Description	Remarks
Data 3	Tens digit of a project	
Data 4	Units digit of a project	

PROJECT NUMBER SENSE

Requests the number of project

Data 4 bytes

DRIVE SELECT

Select the drive.

Data 4 bytes

Data 3	Data 4	Description	Remarks
0	0	ODD	
0	1	HDD	
F	F	Sense	Requests the current setting

5. Return Command Detail

5-1. INFORMATION RETURN

Transmitted in response to an INFORMATION REQUEST command [0F].

Returns the software version of the controlled device.

Command 8F
Data 8 bytes
Request command INFORMATION REQUEST [0F]

Data 1	Tens digit of software version	Sample data for Data 1 - Data 4 0100 Version 1.00
Data 2	Units digit of software version	
Data 3	1 st decimal digit of software version	
Data 4	Hundreds digit of software version	
Data 5	Thousands digit of software build	Sample data for Data 5 - Data 8 0100 Build 100
Data 6	Hundreds digit of software build	
Data 7	Tens digit of software build	
Data 8	Units digit of software build	

5-2. PITCH CONTROL DATA RETURN

Transmitted in response to a PITCH CONTROL DATA PRESET command [25] with the request data ([FF]) to show the currently set Pitch Control value.

Command A5
Data 4 bytes
Request command PITCH CONTROL DATA PRESET [25]

Data 1	Data 2	Data 3	Data 4	Description	Remarks
N2	N3	0 1	N1	Preset %	Positive (+) value Negative (-) value N1: Tens digit of pitch control value N2: Units digit of pitch control value N3: 1 st decimal of pitch control value Sample) 2010: -2.0%

5-3. CLOCK DATA RETURN

Transmitted in response to a CLOCK DATA PRESET command [27] with the request data ([FF]) to show the Clock data.

Command A7
Data 12 bytes
Request command CLOCK DATA PRESET [25]

	Description	Remarks
Data 1	Tens digit of Christian era	
Data 2	Units digit of Christian era	
Data 3	Tens digit of months	
Data 4	Units digit of months	
Data 5	Tens digit of days	
Data 6	Units digit of days	
Data 7	Tens digit of hours	
Data 8	Units digit of hours	
Data 9	Tens digit of minutes	
Data 10	Units digit of minutes	
Data 9	Tens digit of seconds	
Data 10	Units digit of seconds	

5-4. FADE IN/OUT TIME RETURN

Transmitted in response to a FADE IN/OUT TIME PRESET command [2E] with the request data ([00FF] or [01FF]) to show the currently set the Fade In and Out time.

Command AE
 Data 4 bytes
 Request command FADE IN/OUT TIME PRESET [2E]

	内容	備考
Data1	00: FADE IN setting	
Data2	01: FADE OUT setting	
Data3	1 st decimal digit of Fade In/Out time	
Data4	2 nd decimal digit of Fade In/Out time	
Data5	Tens digit of the Fade In/Out time	
Data6	Units digit of the Fade In/Out time	

5-5. RESUME PLAY SELECT RETURN

Transmitted in response to a RESUME PLAY SELECT command [34] with the request data ([FF]) to show the currently set the Resume setting.

Command B4
 Data 4 bytes
 Request command RESUME PLAY SELECT [34]

Data 1	Data 2	Description	Remarks
0	2	Resume Off	
0	3	Resume On	

5-6. PITCH CONTROL SELECT RETURN

Transmitted in response to a PITCH CONTROL SELECT command [35] with the request data ([FF]) to show the currently set the Pitch Control mode status.

Command B5
 Data 2 bytes
 Request command PITCH CONTROL SELECT [35]

Data 1	Data 2	Description	Remarks
0	0	Pitch Control Off	Pitch Control mode is turned off
0	1	Pitch Control On	Pitch Control mode is turned on

5-7. AUTO READY SELECT RETURN

Transmitted in response to an AUTO READY SELECT command [36] with the request data ([FF]) to show the currently set the Auto Ready mode status.

Command B6
 Data 2 bytes
 Request command AUTO READY SELECT [36]

Data 1	Data 2	Description	Remarks
0	0	Auto Ready Off	Auto Ready function is turned off
0	1	Auto Ready On	Auto Ready function is turned on

5-8. REPEAT SELECT RETURN

Transmitted in response to a REPEAT SELECT command [37] with the request data ([FF]) to show the currently set the repeat function status.

Command B7
Data 2 bytes
Request command REPEAT SELECT [37]

Data 1	Data 2	Description	Remarks
0	0	Repeat Off	Repeat mode is off
0	1	All Repeat	All Repeat mode is on
0	2	Single Repeat	Single Repeat mode is on
0	3	A-	Start point of A-B repeat is set
0	4	A-B Repeat	A-B Repeat mode is on

5-9. AUTO SPACE SELECT RETURN

Transmitted in response to an AUTO SPACE SELECT command [3B] with the request data ([FF]) to show the currently set the Auto Space mode status.

Command BB
Data 2 bytes
Request command AUTO SPACE SELECT [3B]

Data 1	Data 2	Description	Remarks
0	0	Auto Space Off	Auto Space function is off
0	1	Auto Space On	Auto Space function is on

5-10. MUTE SENSE RETURN

Transmitted in response to an MUTE SELECT command [3C] with the request data ([FF]) to show the currently set the Mute mode status.

Command BC
Data 2 bytes
Request command MUTE SELECT [3C]

Data 1	Data 2	Description	Remarks
0	0	Mute Off	Mute function is off
0	1	Mute On	Mute function is on

5-11. FADE IN/OUT SELECT RETURN

Transmitted in response to a FADE IN/OUT SELECT command [3E] with the request data ([FF]) to show the currently set the Fade In/Out function status.

Command BE
Data 2 bytes
Request command FADE IN/OUT SELECT [3E]

Data 1	Data 2	Description	Remarks
0	0	Fade In/Out Off	
0	1	Fade In/Out Rehearsal	
0	2	Fade In/Out On	

5-12. SINGLE PLAY RETURN

Transmitted in response to a SINGLE PLAY SENSE command [4E] with the request data ([FF]) to show the currently set the Single Play status.

Command CE
 Data 2 bytes
 Request command SINGLE PLAY SENSE [4E]

Data 1	Data 2	Description	Remarks
0	0	Single Play Off	
0	1	Single Play On	

5-13. MECHA STATUS RETURN

Transmitted in response to a MECHA STATUS SENSE command [50] and gives the current mechanism status of the controlled device.

Command D0
 Data 4 bytes
 Request command MECHA STATUS SENSE [50]

Data 1	Data 2	Description	Remarks
	Drive	00: ODD	ODD mode
		01: HDD	HDD mode
	Status	00: No Disc	A disc is not loaded
		01: Eject/Tray	When LCD shows "OPEN"
		02: CLOSE	When LCD shows "CLOSE" or "DISC READING"
		10: Stop/Ready On	Transport is in Stop or Ready
		11: Play	Transport is in Play mode
		80: OPC	In OPC processing
		81: Record	Transport is in Recording mode
		82: Record Ready	Transport is in Record Ready mode

5-14. TRACK No. RETURN

Transmitted in response to a TRACK No. SENSE command [55], giving the current track status.

Command D5
 Data 6 bytes
 Request command TRACK No. SENSE [55]

	Description	Remarks
Data 1		Always 0
Data 2		Always 0
Data 3	Tens digit of the Track Number	
Data 4	Units digit of the Track Number	
Data 5	Thousands digit of the Track Number	
Data 6	Hundreds digit of the Track Number	

5-15. DISC STATUS RETURN

Transmitted in response to a DISC STATUS SENSE command [56], giving the status of the loaded disc.

Command D6
 Data 4 bytes
 Request command DISC STATUS SENSE [56]

Data 1	Disc Status	00: No Disc
Data 2		01: A disc has been loaded
Data 3	Disc Type	00: CD-DA (ROM)
Data 4		01: CD-DA (R) including blank disc
		02: CD-DA (RW) including blank disc
		10: CD-Data (ROM)
		11: CD-Data (R)
		12: CD-Data (RW)
		40: DVD-Audio (ROM)
		41: DVD-Audio (-R)
		42: DVD-Audio (-RW)
		45: DVD-Audio (+R)
		46: DVD-Audio (+RW)
		48: DVD-Audio (RAM)
50: DVD-Data (ROM)		
51: DVD-Data (-R) including blank disc		
52: DVD-Data (-RW) including blank disc		
55: DVD-Data (+R) including blank disc		
56: DVD-Data (+RW) including blank disc		
58: DVD-Data (RAM) including blank disc		
	FF: Unknown	

5-16. CURRENT TRACK INFORMATION RETURN

Transmitted in response to a CURRENT TRACK INFORMATION SENSE command [57], giving the elapsed time of the current track.

Command D7
 Data 12 bytes
 Request command CURRENT TRACK INFORMATION SENSE [57]

	Description	Remarks
Data 1	Tens digit of the track number	DVD/HDD mode only, 0 at CD mode
Data 2	Units digit of the track number	
Data 3	Thousands digit of the track number	
Data 4	Hundreds digit of the track number	
Data 5	Tens digit of minutes	
Data 6	Units digit of minutes	
Data 7	Thousands digit of minutes	
Data 8	Hundreds digit of minutes	
Data 9	Tens digit of seconds	
Data 10	Units digit of seconds	
Data 11	Tens digit of frames	
Data 12	Units digit of flames	

5-17. CURRENT TRACK TIME RETURN

Transmitted in response to a CURRENT TRACK TIME SENSE command [58], giving the specified form of the time data of the current track or disc.

Command D8
Data 10 bytes
Request command CURRENT TRACK TIME SENSE [58]

	Description	Remarks	
Data 1	Time Mode	00: Elapsed time of track	
Data 2		01: Remain time of track	
		02: Elapsed time of disc/project	
		03: Remain time of disc/project	
Data 3	Tens digit of minutes		
Data 4	Units digit of minutes		
Data 5	Thousands digit of minutes		
Data 6	Hundreds digit of minutes		
Data 7	Tens digit of seconds		
Data 8	Units digit of seconds		
Data 9	Tens digit of frames		DVD/HDD mode only, 0 at CD mode
Data 10	Units digit of frames		DVD/HDD mode only, 0 at CD mode

5-18. CURRENT TRACK TIME RETURN

Transmitted in response to a TITLE SENSE command [59], giving the specified form of the time data of the current track title (CD, DVD, HDD), project title (DVD, HDD), or disc title (CD). If there is no title, controlled device returns ILLEGAL SENSE REQUEST ([F2]).

Command D9
Data None or 5 to 100 bytes
Request command TITLE SENSE [59]

	Description	Remarks
Data 1	Tens digit	0000: Project or disc title
Data 2	Units digit	0001 – 0099: Track title
Data 3	Thousands digit of months	
Data 4	Hundreds digit	
Data 5 – 100	Title	

5-19. TOTAL TRACK No./TOTAL TIME RETURN

Transmitted in response to a TOTAL TRACK No./TOTAL TIME SENSE command [5D], giving the total number of the tracks and the running time on a disc.

Command DD
 Data 12 bytes
 Request command TOTAL TRACK No./TOTAL TIME SENSE [5D]

	Description	Remarks
Data 1	Tens digit of total number of tracks	
Data 2	Units digit of total number of tracks	
Data 3	Thousands digit of total number of tracks	
Data 4	Hundreds digit of total number of tracks	
Data 5	Tens digit of minutes	
Data 6	Units digit of minutes	
Data 7	Thousands digit of minutes	
Data 8	Hundreds digit of minutes	
Data 9	Tens digit of seconds	
Data 10	Units digit of seconds	
Data 11	Tens digit of frames	DVD/HDD mode only, 0 at CD mode
Data 12	Units digit of frames	DVD/HDD mode only, 0 at CD mode

If Data 1 to Data 4 is "0000", the inserted DVD disc is blank disc or no disc.

5-20. PGM TOTAL TRACK No./TOTAL TIME RETURN

Transmitted in response to a PGM TOTAL TRACK No./TOTAL TIME SENSE command [5E], giving the total number of the programmed tracks and the running time of the programmed tracks.

Command DE
 Data 12 bytes
 Request command PGM TOTAL TRACK No./TOTAL TIME SENSE [5E]

	Description	Remarks
Data 1	Tens digit of total tracks	
Data 2	Units digit of total tracks	
Data 3	Thousands digit of total tracks	
Data 4	Hundreds digit of total tracks	
Data 5	Tens digit of minutes	
Data 6	Units digit of minutes	
Data 7	Thousands digit of minutes	
Data 8	Hundreds digit of minutes	
Data 9	Tens digit of seconds	
Data 10	Units digit of seconds	
Data 11	Tens digit of frames	DVD/HDD mode only, 0 at CD mode
Data 12	Units digit of frames	DVD/HDD mode only, 0 at CD mode

If Data 1 to Data 4 is "0000", there is no program..

5-21. KEYBOARD TYPE SENSE RETURN

Transmitted in response to a KEYBOARD TYPE SENSE command [5F] to show the currently set the Keyboard type status.

Command DF
 Data 2 bytes
 Request command KEYBOARD TYPE ENSE [5F]

Data 1	Data 2	Description	Remarks
0	0	US	
0	1	JPN (JIS)	

5-22. ERROR SENSE REQUEST

Transmitted from the controlled device to the external controller to indicate an error condition. On receipt of this message, the external controller should issue an ERROR SENSE request [78] in order to determine the error type.

Command F0
 Data None
 Request command None

5-23. CAUTION SENSE REQUEST

Transmitted from the controlled device to the external controller to indicate an error condition. On receipt of this message, the external controller should issue an CAUTION SENSE request [79] in order to determine the error type.

Command F1
 Data None
 Request command None

5-24. ILLEGAL STATUS

Transmitted from the controlled device to the external controller in order to indicate illegal status, caused by an invalid command having been received. The external controller should attempt to re-send a corrected version of the message.

Command F2
 Data None
 Request command None

5-25. POWER ON STATUS

Transmitted from the controlled device to the external controller in order to signal power-up.

Command F4
 Data None
 Request command None

5-26. CHANGE STATUS

Transmitted from the controlled device to the external controller. There are two types of change which may be transmitted, each or which requires a reply by the external controller, as explained below.

Command F6
 Data 2 bytes
 Request command None

Data 1	Data 2	Description	Remarks
0	0	Mechanism Status Change	Mechanism status has been changed
0	3	Track Status Changes	Track has been changed

5-27. ERROR SENSE RETURN

Transmitted in response to an ERROR SENSE command [78], giving the specific error that has occurred.

Command F8
 Data 4 bytes
 Request command ERROR SENSE [78]

Data 1	N2	Error code (N1-N2N3)	
Data 2	N3		
Data 3	0		
Data 4	N1		
		System Error	1-01 Word Clock Error 1-02 D IN Clock Error 1-03 PLL Unlock Error 1-04 Clock Recover 1-05 Cbit illegal 1-06 DIN no signal 1-07 DIN speed illegal 1-08 Disc Full 1-09 Disc remain is not enough 1-10 Over 99 files 1-11 Over 2GB file 1-12 Unsupported medium 1-13 Delete Minimum size file 1-14 Divide cannot execute
		File Error	2-01 Disc Format Error 2-02 Same Project Name Exist 2-03 Project Create Error 2-04 Project Read Error 2-05 Project Write Error 2-06 Project Delete Error 2-07 Same File Name Exist 2-08 Audio File Create Error 2-09 Audio File Read Error 2-10 Audio File Write Error 2-11 Audio File delete Error 2-12 Audio Data Read Error
		UDF Error	4-01 Read error 4-02 Write error 4-03 UDF unmount

5-28. CAUTION SENSE RETURN

Transmitted in response to a CAUTION SENSE command [79], giving the specific error that has occurred.

Command F9
Data 4 bytes

Data 1	N2	Caution code (N1-N2N3)	
Data 2	N3	1-01	Cannot Execute on This Screen
Data 3	0	1-02	Cannot Execute on This Mecha Status
Data 4	N1	1-03	Function Executing
		1-04	Cannot Execute on USB mode
		1-05	Cannot Execute on Update mode
		2-01	Cannot Set Mark More
		2-02	Cannot Create Track More
		2-03	Cannot Create Project More

5-29. VENDER COMMAND RETURN

Transmitted in response to a VENDER COMMAND [7F], giving some information of the DV-RA1000HD.

Command FF
Data 4 bytes
Return VENDER COMMAND [7F]

Data 1	Data 2	Description	Remarks
0	0	Monitor Select	
0	2	Project Number Sense	
0	3	Drive Select	

MONITOR SELECT

Sends the input monitor mode setting.
Data 4 bytes

Data 3	Data 4	Description	Remarks
0	0	Input Monitor Off	
0	1	Input Monitor On	

PROJECT NUMBER RETURN

Sends the number of project
Data 4 bytes

	Description	Remarks
Data 3	Tens digit of the number of projects	
Data 4	Units digit of the number of projects	

DRIVE SELECT

Sends the current active drive
Data 4 bytes

Data 3	Data 4	Description	Remarks
0	0	ODD	
0	1	HDD	
F	F	Sense	Requests the current setting