



Professional Blu-ray Disc Player

BDP-V6000

RS-232C

Command Protocol Manual

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Table of Contents

1. Introduction	5
2. Serial Control	6
2.1. Interface Specifications	6
2.1.1. Interface Connector	6
2.1.2. Signals	6
2.1.3. Signal Level.....	6
2.1.4. Data Format.....	6
2.1.5. Communication Speed (baud rate).....	6
2.2. Connection to a Computer.....	7
3. Commands and Status Returns	8
3.1. Command Structure	9
3.1.1. Command Mnemonics	9
3.1.2. Arguments.....	9
3.1.3. Command String Termination.....	9
3.1.4. Command String Buffer Number.....	9
3.2. Command Processing.....	9
3.2.1. Completed Status	9
3.2.2. Error Status	10
3.2.3. Request Status.....	10
3.3. Power-ON Processing	10
3.4. Error Status.....	10
3.5. List of Commands	10
3.6. Command Support Table.....	15
3.7. Command Details.....	18
3.7.1. Power ON	18
3.7.2. Power OFF	18
3.7.3. Open.....	19
3.7.4. Close.....	19
3.7.5. Stop.....	20
3.7.6. Play.....	20
3.7.7. Pause	21
3.7.8. Still	22
3.7.9. Step Forward.....	22
3.7.10. Step Reverse	22
3.7.11. Scan Stop	23
3.7.12. Search	23
3.7.13. Search & Play.....	24
3.7.14. Stop Marker.....	24
3.7.15. Clear.....	25

3.7.16.	Time	26
3.7.17.	Chapter	26
3.7.18.	Title	27
3.7.19.	Track	27
3.7.20.	Key Lock	27
3.7.21.	Advanced Playlist Playback	28
3.7.22.	Current Address Request	29
3.7.23.	Title (Track) Number Request	29
3.7.24.	Chapter Number Request.....	30
3.7.25.	Time Code Request	30
3.7.26.	Index Number Request.....	31
3.7.27.	DVD Disc Status Request.....	31
3.7.28.	BD Disc Status Request	32
3.7.29.	Get Information.....	33
3.7.30.	CD Disc Status Request	33
3.7.31.	Player Active Mode Request.....	35
3.7.32.	Player Model Name Request.....	36
3.7.33.	Slow	36
3.7.34.	Error Code Request.....	36
3.7.35.	Menu Call	37
3.7.36.	Numeric Button.....	37
3.7.37.	Button Select	38
3.7.38.	Enter Button	38
3.7.39.	Firmware Version Request.....	39
3.7.40.	Remote control Button.....	39

1. Introduction

The BDP-V6000 is a professional Blu-ray Disc (BD) player that supports BD, DVD and CD media playback. In addition to control through the front panel and the remote control, the BDP-V6000 is equipped with an RS-232C-compatible serial control interface allowing connection to a computer (PC).

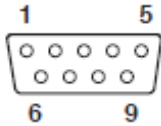
This manual explains procedures and cautions related to controlling the player using this serial interface. For instructions about using the buttons on the remote control and front panel, refer to the operating instructions shipped with the BDP-V6000.

2. Serial Control

2.1. Interface Specifications

2.1.1. Interface Connector

This terminal, which conforms to RS-232C specifications, is a 9-pin (male) D-sub connector.



2.1.2. Signals

The 9-pin D-sub connector's pin layout is as shown below.

Pin no.	Pin name	Input/Output	Function
1	DCD	Input	NC (not connected on the player)
2	RxD	Input	Receive data
3	TxD	Output	Send data
4	DTR	Output	NC (not connected on the player)
5	GND	-	Ground
6	DSR	Input	NC (not connected on the player)
7	RTS	Output	Connected to CTS pin internally
8	CTS	Input	Connected to RTS pin internally
9	RI	-	NC (not connected on the player)

2.1.3. Signal Level

RS-232C level

2.1.4. Data Format

Data length : 8 bits
Stop bit : 1 bit
Parity : None

2.1.5. Communication Speed (baud rate)

The available communication speeds (baud rate) are as follows:

- 2400 bps
- 4800 bps
- 9600 bps [factory default]
- 19200 bps
- 115200 bps

3. Commands and Status Returns

As the basic protocol, the computer issues the command to the player and the player returns the status.

When the player receives a command, it echoes back the received character string.

After this, a response of the completed status, request status or error status is returned.

【Examples】	Computer		BDP-V6000
(1)	"Stop playback"	99RJ<CR>	→
			← 99RJ<CR> (echoes back)
			Stops playback.
			← R<CR> "Completed status"
(2)	"Open tray"	OP<CR>	→
			← OP<CR> (echoes back)
			Opens tray.
			← R<CR> "Completed status"

Once all command processing is complete, the player returns the completed status. If an error occurs, the player returns the error code.

The function called "Auto status" automatically returns the status after each command is executed. Auto status notifies the computer when to issue the next command. If the computer does not use this function, the next command is held until the previous command is fully executed.

There is also the "Request command" for revealing the player's status. This function returns player and disc information such as the operating mode, time, etc.

The primary request commands are shown below.

- ?P – To learn the player's operating mode.
- ?A, ?R, ?C, ?T, ?I – To learn the current time, chapter, title/track number, etc.
- ?L, ?E, ?Z – To learn the player's information.
- ?V, ?J, ?K, ?D – To learn information on the loaded disc.

The command and status functions are as follows:

Command

- └─Auto status
- └─Completed status
- └─Error status

Request command

- └─Request status
- └─Error status

3.1. Command Structure

3.1.1. Command Mnemonics

Commands use ASCII English letters/numbers and consist of two characters. No distinction is made between capital and small letters.

3.1.2. Arguments

Arguments are added to commands to specify title or chapter numbers, etc. Arguments consist of ASCII English letters/numbers and are placed in front of the command. If a command requiring an argument has no argument, an error occurs.

Address (adrs) :

Addresses consist of ASCII numbers and express the title number/chapter number/track number/time code.

The address mode is specified with the Title/Chapter/Track/Time command.

Argument (arg) :

Arguments consist of ASCII English letters/numbers and express command parameters with arguments other than addresses.

3.1.3. Command String Termination

When the <CR> code is received, the command terminates.

3.1.4. Command String Buffer Number

A command string is a group of multiple commands. When commands are received, a command string with a maximum of 32 characters is buffered. Characters beyond the 32nd character are ignored.

【Ex.】 TM2000SE2300PL<CR>

3.2. Command Processing

Buffered commands are extracted and processed sequentially.

If the received command string includes <SPACE> or <LF> (line feed), it is ignored.

If an error is generated, subsequent commands are not executed.

3.2.1. Completed Status

The completed status used with “Auto status” is expressed with an "R".

【Ex.】 R<CR>

3.2.2. Error Status

The error status is expressed as an "E" followed by a 2-digit error number.

【Ex.】 E04<CR>

3.2.3. Request Status

Commands including "?" are request commands. Information corresponding to the command and the terminator (<CR>) is returned.

When multiple request commands are issued within the same command string, each is terminated by <CR> and the status is returned.

【Ex.】 ? R? C<CR> → 01<CR>
05<CR>

3.3. Power-ON Processing

When the Power ON or PLAY command, or the [Power]/[Play]/[Power On] remote control button command is received when the power is off, the power turns on and the command is executed.

When the power is off, any other commands are ignored.

3.4. Error Status

When a problem occurs during command processing, an error code is returned (example: "E04<CR>").

Code	Error type	Description
E04	Feature not available	Attempt has been made to execute a function that cannot be used - Command mnemonics are wrong (mode cannot be used)
E06	Missing Argument	Proper parameter has not been specified
E11	Disc does not exist	No disc is loaded
E12	Search Error	Search address cannot be found
E15	Picture stop	Picture stop - Still picture has been set by picture stop code during auto play
E16	Interrupt by Other device	Interruption by other device during command execution
E99	Panic Error	Failure to close the tray

3.5. List of Commands

Below is a list of the RS-232C commands. For details on individual commands, refer to section 3.7 Command Details in this manual.

Playback-related commands (*1) are only valid for BDMV/BD-RE/DVD-Video/DVD VR/CD-DA/DTS-CD discs. If other application formats are detected, error (E04) is returned.

(*1) Playback-related commands: Stop/Play/Advanced Playlist Playback/Pause/Still/Step/Forward/Step Reverse/Scan Stop/Search/Search & Play/Stop Marker/Current Address Request/Slow/Time

Code Request/Title (Track) Number Request/Chapter Number Request/Index Number Request

Operation-related commands (*2) do not operate when screens other than those that can be shown in the play mode (*3) are displayed.

- (*2) Operation-related commands: Stop/Play/Advanced Playlist Playback/Pause/ Still/ Step Forward/ Step Reverse/ Scan Stop/ Search & Play/ Menu Call/Numeric Button/ Button Select/ Enter Button/ Slow
- (*3) GUI screens displayable in the play mode: Playback screen, play mode screen, picture quality adjust screen, sound adjust screen, etc. Addresses can be specified for commands for which (Address) is included in the command mnemonic.

The command operation functions according to the specified address mode. The initial value of the address mode when the power is turned on is TM (Time).

The types of applications and valid address modes are shown below.

Table 1 – Address Modes for Play/Stop Marker Commands

		BDMV				BDAV	DVD-Video		DVD VR	CD-DA	DTS-CD
		HDMV		BD-J			One Sequential PGC	PGCs other than One Sequential			
		Movie	Interactive	Movie	Interactive						
Address mode	TM (Time)	↘				↘	↘		↘	↘	
	CH (Chapter)	↘				↘	↘				
	TI (Title)	↘	↘			↘	↘	↘			
	TR (Track)								↘	↘	

Table 2 - Address Modes for Search/Search & Play Commands

		BDMV				BDAV	DVD-Video		DVD VR	CD-DA	DTS-CD
		HDMV		BD-J			One Sequential PGC	PGCs other than One Sequential			
		Movie	Interactive	Movie	Interactive						
Address mode	TM (Time)	↘		↘		↘		↘	↘	↘	
	CH (Chapter)	↘		↘		↘		↘			
	TI (Title)	↘	↘	↘	↘	↘	↘	↘			
	TR (Track)								↘	↘	

A command mnemonic can specify (Argument) as an argument. For details about arguments, refer the description for each command.

Table 3 - RS-232C Commands

No.	Command name	Command mnemonic	Description of command
1	Power ON	PN	Turns power on.
2	Power OFF	PF	Turns power off.
3	Open	OP	Opens the disc tray.
4	Close	CO	Closes the disc tray.
5	Stop	99RJ	Stops playback.
6	Play	(Address)PL	Plays the picture and sound.
7	Pause	PA	Pauses without outputting the picture.
8	Still	ST	Pauses with the picture being output.
9	Step Forward	SF	Moves a step forward.
10	Step Reverse	SR	Moves a step backward.
11	Scan Stop	NS	Stops forward/reverse scanning, plays.
12	Search	(Address)SE	Searches for the specified address.
13	Search & Play	(Address)SL	Searches for the specified address and starts playback from that position.
14	Stop Marker	(Address)SM	Sets the specified address and pauses when that address is reached.
15	Clear	CL	Conducts the clear/cancel processing.
16	Time	TM	Sets the address mode to Time.
17	Chapter	CH	Sets the address mode to Chapter.
18	Title	TI	Sets the address mode to Title.
19	Track	TR	Sets the address mode to Track.
20	Key Lock	(Argument)KL	Controls button and tray locking.
21	Advanced Playlist Playback	(Argument)BS	Plays professional playlists.
22	Current Address Request	?A	Returns all information on currently playing title number, chapter number, etc.
23	Title (Track) Number Request	?R	Returns the currently playing title number or track number.
24	Chapter Number Request	?C	Returns the currently playing chapter number.
25	Time Code Request	?T	Returns the currently playing time.
26	Index Number Request	?I	Returns the currently playing track or index number.
27	DVD Disc Status Request	?V	Returns the DVD status.
28	BD Disc Status Request	?J	Returns the BD status.
29	Get Information	?D	Returns the disc information.
30	CD Disc Status Request	?K	Returns the CD status.

No.	Command name	Command mnemonic	Description of command
31	Player Active Mode Request	?P	Returns the player's current operating mode.
32	Player Model Name Request	?L	Returns the player's model name.
33	Slow	(Argument)SW	Sets slow playback.
34	Error Code Request	?E	Returns the most recent error code.
35	Menu Call	(Argument)MC	Conducts disc menu call out/resume.
36	Numeric Button	(Argument)NB	Conducts disc menu button selection/execution.
37	Button Select	(Argument)CU	Conducts disc menu button selection.
38	Enter Button	ET	Conducts disc menu button entering.
39	Firmware Version Request	?Z	Returns the firmware version.
40	Remote control Button	/(Argument)/RU	Conducts the same operation as the buttons on the remote control unit. For the correspondence between the remote control buttons and arguments, see "Table 4 - Remote Control Button Commands".

Commands and arguments are assigned according to the buttons on the BDP-V6000's remote control. Cases in which operation differs from that of the remote control button are explained under "Function".

Table 4 - Remote Control Button Commands

No.	Command Name	Argument	Function
1	Power	A181AFBC	Turns the power on/off.
2	Open/Close	A181AFB6	Opens/closes the disc tray.
3	Audio	A181AFBE	Switches the audio.
4	Subtitles	A181AF36	Switches the subtitles.
5	Angle	A181AFB5	Switches the angle of the BDMV or DVD-Video disc.
6	Secondary video	A181AFBF	When this command is received while playing BDMV discs on which secondary video (picture in picture) signals are recorded, switches the secondary video.
7	Secondary audio	A181AFBD	When this command is received while playing BDMV discs on which secondary audio signals are recorded, switches the secondary audio.
8	Play mode	A181AF7F	Displays/closes the play mode screen.
9	Picture quality adjust	A181AF30	Displays/closes the picture quality adjust screen.
10	Home media gallery	A181AFF7	Displays/closes the home media gallery.
11	Top menu	A181AFB4	Displays the BDMV or DVD-Video disc's top menu screen.
12	Home menu	A181AFB0	Displays/closes the home menu.
13	Menu	A181AFB9	Displays the BDMV or DVD-Video disc's menu screen.
14	↑	A184FFFF	Used to select items, change settings, move the cursor, etc. * Operations performed by holding remote control buttons pressed in are not supported.
15	↓	A185FFFF	
16	←	A187FFFF	
17	→	A186FFFF	

No.	Command Name	Argument	Function
18	Enter	A181AFEF	Used to execute selected items, enter changed settings, etc.
19	Back	A181AFF4	Returns to the previous screen.
20	Tools	A181AFB3	Displays/closes the tools menu.
21	0	A181AFA0	Used to specify and play titles/chapters/tracks, to select items on menu screens, etc.
22	1	A181AFA1	
23	2	A181AFA2	
24	3	A181AFA3	
25	4	A181AFA4	
26	5	A181AFA5	
27	6	A181AFA6	
28	7	A181AFA7	
29	8	A181AFA8	
30	9	A181AFA9	
31	Clear	A181AFE5	Used when a mistake has been made inputting numbers, etc. * The all clear operation performed by holding the remote control button pressed in is not supported.
32	On-screen display	A181AFE3	Displays the disc information.
33	Play	A181AF39	Starts playback.
34	Stop	A181AF38	Stops playback.
35	Pause	A181AF3A	Stops playback temporarily. When this command is received again, playback resumes.
36	Reverse scanning/Slow/Step	A181AFEA	Reverse scanning is set when this command is received during playback. Reverse step by step playback is set when received in the pause mode. * Reverse scanning and reverse slow motion playback performed by holding the remote control button pressed in are not supported.
37	Forward scanning/Slow/Step	A181AFE9	Forward scanning is set when this command is received during playback. Forward step by step playback is set when received in the pause mode. * Forward scanning and forward slow motion playback performed by holding the remote control button pressed in are not supported.
38	Previous	A181AF3E	Skips playback to the beginning of the previous title/chapter/track /file. * List screen page switching performed by holding the remote control button pressed in is not supported.
39	Next	A181AF3D	Skips playback to the beginning of the next title/chapter/track/file. * List screen page switching performed by holding the remote control button pressed in is not supported.
40	Switch Resolution ↑	A181AFFA	Switches the resolution of the video signals output from the video output terminals.
41	Switch Resolution ↓	A181AFFC	Switches the resolution of the video signals output from the video output terminals.
42	Switch Video Output	A181AFB8	Switches the video output terminal for viewing to "HDMI Out", "Analog Out" ("Component Video") or "Video".

No.	Command Name	Argument	Function
43	FL Dimmer	A181AFF9	Adjusts the main unit display window's brightness. When "Off" is selected, the "FL OFF" indicator on the main unit's front panel lights.
44	Color Button (Blue)	A181AF66	Used when operating BDMV menu screens.
45	Color Button (Red)	A181AF64	
46	Color Button (Green)	A181AF65	
47	Color Button (Yellow)	A181AF67	
48	POWER ON	A181AFBA	Turns the power on.
49	POWER OFF	A181AFBB	Turns the power off.

3.6. Command Support Table

The commands supported for the different types of media are shown below.

No	Argument	Mnemonic	Command name	BDMV				BD-VR	DVD-Video		DVD VR	CD-DA	DTS-CD	DATA DISC
				HDMV		BD-J			One Sequential PGC	PGCs other than One Sequential				
				Movie	Interactive	Movie	Interactive							
1		PN	Power ON	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2		PF	Power OFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3		OP	Open	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
4		CO	Close	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
5	99	RJ	Stop	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6	Address	PL	Play	✓ *1	✓ *1	✓ *2	✓ *2	✓ *1	✓ *1	✓ *1	✓ *1	✓ *1	✓ *1	
7		PA	Pause	✓	✓			✓	✓	✓	✓	✓		
8		ST	Still	✓	✓	✓	✓	✓	✓	✓	✓	✓		
9		SF	Step Forward	✓	✓	✓	✓	✓	✓	✓				
10		SR	Step Reverse	✓	✓	✓	✓	✓	✓	✓				
11		NS	Scan Stop	✓	✓	✓	✓	✓	✓	✓	✓	✓		
12	Address	SE	Search	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	
13	Address	SL	Search & Play	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	✓ *3	
14	Address	SM	Stop Marker	✓ *4	✓ *4			✓ *4	✓ *4	✓ *4	✓ *4	✓ *4	✓ *4	

No	Argument	Mnemonic	Command name	BDMV				BD-VR	DVD-Video		DVD VR	CD-DA	DTS-CD	DATA DISC
				HDMV		BD-J			One Sequential PGC	PGCs other than One Sequential				
				Movie	Interactive	Movie	Interactive							
15		CL	Clear	✓	✓	✓	✓	✓	✓	✓	✓	✓		
16		TM	Time	✓ *5		✓ *5		✓ *5	✓ *5	✓ *5	✓ *5	✓ *5		
17		CH	Chapter	✓ *5		✓ *5		✓ *5	✓ *5	✓ *5				
18		TI	Title	✓ *5	✓ *5	✓ *5	✓ *5	✓ *5	✓ *5	✓ *5				
19		TR	Track								✓ *5	✓ *5		
20	Argument	KL	Key Lock	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
21	Argument	BS	Advanced Playlist Playback	✓	✓	✓	✓	✓	✓					
22		?A	Current Address Request	✓	✓	✓	✓	✓	✓	✓	✓	✓		
23		?R	Title/Track Number Request	✓	✓	✓	✓	✓	✓	✓	✓	✓		
24		?C	Chapter Number Request	✓	✓	✓	✓	✓	✓	✓				
25		?T	Time Code Request	✓	✓	✓	✓	✓	✓	✓	✓	✓		
26		?I	Index # Request								✓	✓		
27		?V	DVD Disc Status Request					✓	✓	✓				
28		?J	BD Disc Status Request	✓	✓	✓	✓	✓						
29		?D	Get Information	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
30		?K	CD Disc Status Request								✓	✓		
33	Argument	SW	Slow	✓	✓	✓	✓	✓	✓	✓				
34		?E	Error Code Request	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

No	Argument	Mnemonic	Command name	BDMV				BD-AY	DVD-Video		DATA DISC	DTS-CD	CD-DA	DVD VR
				HDMV		BD-J			One Sequential PGC	PGCs other than One Sequential				
				Movie	Interactive	Movie	Interactive							
35	Argument	MC	Menu Call	✓	✓	✓	✓		✓	✓				
36	Argument	NB	Numeric Button	✓	✓	✓	✓		✓	✓				
37	Argument	CU	Button Select	✓	✓	✓	✓		✓	✓				
38		ET	Enter Button	✓	✓	✓	✓		✓	✓				
39		?Z	Firmware Version Request	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
40	/Argument/	RU	Remote Control Button	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

*1 T Two types of Play commands (with addresses and without addresses)

- Play commands without addresses are "○" for all types of discs.
- Whether a Play command with an address is supported depends on the address mode.

Note: For details, refer to "Table 1 – Address modes for which Play/Stop Marker commands are valid".

*2 Two types of Play commands (with addresses and without addresses)

- Play commands without addresses are "○" for all types of discs.
- Play commands with addresses are "×".

*3 Whether a Search/Search & Play command is supported depends on the address mode.

Note: For details, refer to "Table 2 - Address modes for which Search/Search & Play commands are valid".

*4 Whether a Stop Marker command is supported depends on the address mode.

Note: For details, refer to "Table 1 – Address modes for which Play/Stop Marker commands are valid".

*5 Specifies the address mode when using the Play/Search/Search & Play/Stop Marker commands

Support depends on the command being used.

Note: For details, refer to "Table 1 – Address modes for which Play/Stop Marker commands are valid" and "Table 2 - Address modes for which Search/Search & Play commands are valid".

3.7. Command Details

Below is list of RS-232C commands including descriptions and functions. For the status return timing, refer to "Description of function" and "Execution examples" under the individual commands.

For key lock operations, refer to "3.7.20 Key Lock".

In this manual, "Pause" refers to both pause types unless otherwise specified.

- Pause (Still) : picture is showing
- Pause (Pause) : screen is black

3.7.1. Power ON

◆ Command mnemonics : PN

◆ Description of function

- When the PN command is received while the power is Off, the power turns On but the status is not returned. Since a status is not returned, the next command is held until the command finishes processing.
Even if other commands are received before processing of the PN command is complete, they are not processed.
- If the PN command is received while the power is On, error (E04) is returned.

◆ Execution examples

Command	Status	BD player operation
PN<CR>		Power turns on.

3.7.2. Power OFF

◆ Command mnemonics : PF

◆ Description of function

- When the PF command is received while the power is On, the completed status (R) is returned and the power is turned Off.
- If other commands are received before processing of the PF command is complete (while shutting down), they are not processed.
- If the PF command is received while processing another command, the command being processed is stopped, the completed status (R) is returned with respect to the PF command, and the power is turned Off. The status is not returned for the command that was being processed.

◆ Execution examples

Command	Status	BD player operation
PF<CR>	R<CR>	Power turns off.
		Shutting down is completed.

3.7.3. Open

◆ Command mnemonics : OP

◆ Description of function

- When the OP command is received after the tray closes, the tray opens and after tray opening is complete the completed status (R) is returned.
- When the OP command is received while the tray is opening, the tray continues to open, and after tray opening is completed the completed status (R) is returned.
- When the OP command is received when tray opening is completed, error (E04) is returned.
- When the OP command is received while the tray is closing, tray opening begins once tray closing is completed, and after tray opening is completed the completed status (R) is returned.
- When the OP command is received while a disc is loading, tray opening begins once disc loading is completed, and after tray opening is completed the completed status (R) is returned.

◆ Execution examples

Command	Status	BD player operation
OP<CR>		Tray opens.
		Tray opening is completed.
	R<CR>	

3.7.4. Close

◆ Command mnemonics : CO

◆ Description of function

- When the CO command is received while the tray is open, the tray closes then the completed status (R) is returned.
- When the CO command is received while the tray is closing, the tray continues to close then the completed status (R) is returned.
- When the CO command is received right after closing the tray or while a disc is loading, error (E04) is returned.
- When the CO command is received while the tray is opening, the tray closes as soon as it opens completely and the completed status (R) is returned.
- When the CO command is received and a problem is detected during tray closing, error (E99) is returned

◆ Execution examples

Command	Status	BD player operation
CO<CR>		Tray closes.
		Tray closing is completed.
	R<CR>	

3.7.5. Stop

◆ Command mnemonics: 99RJ

◆ Description of function

- When the 99RJ command is received during playback, playback stops and the completed status (R) is returned.
- When the 99RJ command is received while in the Stop mode, it is not processed and the completed status (R) is returned.

◆ Execution examples

Command	Status	BD player operation
		When playing
99RJ<CR>		Playback is stopped.
	R<CR>	

3.7.6. Play

◆ Command mnemonics : (Address)PL

◆ Description of function

○ When no address is specified

When the PL command is received while in the Stop mode, playback starts and the completed status (R) is returned. The playback position depends on the navigation. When there is no navigation, playback starts from the beginning of the first title.

When the PL command is received during normal playback, it is not processed and the completed status (R) is returned.

When the PL command is received while in the pause/forward scanning/reverse scanning/slow/reverse slow modes, playback reverts to standard speed and the completed status (R) is returned.

When the PL command is received when playback cannot be started, error (E04) is returned.

When the PL command is received while the power is Off, the power turns On, playback starts, but no status is returned.

○ When the address is specified

When the PL command is received during playback, the command is processed as below.

- Restores normal playback

When the PL command is received while in the pause/forward scanning/reverse scanning/slow/reverse slow modes, normal playback resumes.

- Returns the status

When the specified address is received during normal playback, the pause (Still) mode is set and the completed status (R) is returned.

If a command is received before the status is returned, nothing is processed and error (E16) is returned.

If pausing is prohibited at the specified address, error (E04) is returned when the specified address is reached.

If playback stops before the specified address is reached, error (E16) is returned at the point at which playback stops.

During forward/reverse scanning, the status is not returned even if the specified address is reached.

The status is not returned if the specified address does not exist or is an invalid address. For valid address modes, refer to "Table 1 – Address modes for which Play/Stop Marker commands are valid".

When the PL command is received while in the Stop mode, it is not processed and error (E04) is returned.

NOTE: This player is designed so that it pauses approximately 1 second before the specified address is reached.

◆ Execution examples

Command	Status	BD player operation
		When stopped
PL<CR>		Playback starts.
	R<CR>	
		When tray opening is completed
PL<CR>		Tray closes and playback starts.
	R<CR>	
		When power is off
PL<CR>		Power turns on and playback starts.
		During normal playback
TM0325PL<CR>		Sets position for pausing to 3 minutes 25 seconds. *1
		Pauses (Still) at specified address.
	R<CR>	
		During normal playback
TM1065PL<CR>		Sets position for pausing to 10 minutes 65 seconds. *2

*1 When the address mode is TM (Time), the last two digit places represent the seconds.

*2 This address can be specified but the valid range for the last two digit places for TM (Time) is 00 to 59, playback is not paused.

3.7.7. Pause

◆ Command mnemonics : PA

◆ Description of function

When the PA command is received during playback, the pause mode (Pause) is set with a black screen displayed then the completed status (R) is returned.

If pausing is prohibited at the specified address, error (E04) is returned. If the status changes to normal playback, etc., while in the pause mode (Pause), the black screen display is canceled.

When the PA command is received in the Stop mode, error (E04) is returned.

◆ Execution examples

Command	Status	BD player operation
		During normal playback
PA<CR>		Pauses (Pause).
	R<CR>	

3.7.8. Still

- ◆ Command mnemonics : ST

- ◆ Description of function

When the ST command is received during playback, the pause mode (Still) is set with the image on screen and the completed status (R) is returned.

If pause is prohibited at the point at which the command was received, error (E04) is returned.

When the ST command is received in the Stop mode, error (E04) is returned.

- ◆ Execution examples

Command	Status	BD player operation
		During normal playback
ST<CR>		Pauses (Still).
	R<CR>	

3.7.9. Step Forward

- ◆ Command mnemonics : SF

- ◆ Description of function

When the SF command is received in the pause (Still) mode, the picture is moved one step forward, the player pauses and the completed status (R) is returned.

When the SF command is received in the normal play/pause (Pause)/forward scan/reverse scan/slow/reverse slow mode, the pause mode (Still) is set and the completed status (R) is returned.

If pause is prohibited at the point at which the command was received, error (E04) is returned.

When the SF command is received in the Stop mode, error (E04) is returned.

- ◆ Execution examples

Command	Status	BD player operation
		Pausing (Still)
SF<CR>		Picture moves one step forward.
	R<CR>	Pausing (Still)

3.7.10. Step Reverse

- ◆ Command mnemonics : SR

- ◆ Description of function

When the SR command is received in the pause (Still) mode, the picture is moved one step backward, the player pauses and the completed status (R) is returned.

When the SR command is received in the normal play/pause (Pause)/forward scan/reverse scan/slow/reverse slow mode, the pause mode (Still) is set and the completed status (R) is returned.

If pause is prohibited at the point at which the command was received, error (E04) is returned.

When the SR command is received in the Stop mode, error (E04) is returned.

◆ Execution examples

Command	Status	BD player operation
		Pausing (Still)
SR<CR>		Picture moves one step backward.
	R<CR>	Pausing (Still)

3.7.11. Scan Stop

◆ Command mnemonics : NS

◆ Description of function

When the NS command is received during forward/reverse scanning, normal playback is set and the completed status (R) is returned.

When the NS command is received in modes other than forward/reverse scanning, it is not processed and the completed status (R) is returned.

◆ Execution examples

Command	Status	BD player operation
		During forward/reverse scanning
NS<CR>		Normal playback is set.
	R<CR>	

3.7.12. Search

◆ Command mnemonics : (Address)SE

◆ Description of function

- When the SE command is received in the normal play/pause/stop/slow/reverse slow mode, the specified address is searched for then the pause mode (Still) is set and the completed status (R) is returned.

If pause is prohibited at the point searched, the normal play mode is set and the completed status (R) is returned.

If the specified address is search-prohibited, error (E04) is returned.

If the specified address does not exist, error (E12) is returned.

If no address is specified, error (E06) is returned.

- When the SE command is received during forward/reverse scanning, the specified address is searched for then the normal play mode is set and the completed status (R) is returned.

If pausing is prohibited at the point searched, the normal play mode is set and the completed status (R) is returned.

If the specified address is search-prohibited, error (E04) is returned.

If the specified address does not exist, error (E12) is returned.

If no address is specified, error (E06) is returned.

- If the SE command is received when the specified address is not a valid address mode, error (E04) is returned.

If the address mode is CH (Chapter)/TM (Time) while in the Stop mode, error (E04) is returned.

For valid address modes, refer to "Table 2 - Address modes for which Search/Search & Play commands are valid".

- When the SE command is received while a disc is loading, error (E11) is returned.

◆ Execution examples

Command	Status	BD player operation
TI2SE<CR>		Searches for title 2 and pauses (Still).
	R<CR>	
TI2SETM5SE<CR>		Searches for title 2, second 5 and pauses (Still). *1
	R<CR>	

*1 When the address mode is TM, the last two digit places represent the seconds.

3.7.13. Search & Play

◆ Command mnemonics : (Address)SL

◆ Description of function

- When the SL command is received, the specified address is searched for then the normal play mode is set and the completed status (R) is returned.

If the specified address is unsearchable, error (E04) is returned.

If the specified address does not exist, error (E12) is returned.

If no address is specified, error (E06) is returned.

- If the SL command is received when the specified address is not a valid address mode, error (E04) is returned.

If the address mode is CH (Chapter)/TM (Time) while in the Stop mode, error (E04) is returned.

For valid address modes, refer to "Table 2 - Address modes for which Search/Search & Play commands are valid".

- When the SL command is received while a disc is loading, error (E11) is returned.

◆ Execution examples

Command	Status	BD player operation
TI2SL<CR>		Searches for title 2 then plays normally.
—	R<CR>	
TI2SLTM5SL<CR>		Searches for title 2, second 5 then plays normally. *1
—	R<CR>	

*1 When the address mode is TM, the last two digit places represent the seconds.

3.7.14. Stop Marker

◆ Command mnemonics : (Address)SM

◆ Description of function

○ Processing when command is received

- When the SM command is received during playback, the specified address is set and the completed status (R) is returned.

The completed status (R) is returned even if the specified address does not exist or is not a valid address mode.

For valid address modes, refer to "Table 1 – Address modes for which Play/Stop Marker commands are valid".

If no address is specified, error (E06) is returned.

- When the SM command is received in the Stop mode, error (E04) is returned.

○ Processing after specified address is set

- When the specified address is reached during normal/slow/reverse slow play, the pause mode (Still) is set and the specified address is cleared.

If pausing is prohibited at the specified address, the pause mode is not set.

During forward/reverse scanning, the pause mode is not set even when the specified address is reached.

- If the Clear command is received before the specified address is reached, the specified address is cleared.
- If the stop mode is set before the specified address is reached, the specified address is cleared.

NOTE : This player is designed so that it pauses approximately 1 second before the specified address is reached.

◆ Execution examples

Command	Status	BD player operation
		During normal playback
CH5SM<CR>	R<CR>	Sets the specified address to chapter 5.
		Pauses (Still) at the specified address.
		During normal playback
TM1065SM<CR>	R<CR>	Sets the specified address to 10 minutes 65 seconds. *1

*1 This address can be specified, but the valid range for the last two digit places for TM (Time) is 00 to 59, so playback is not paused.

3.7.15. Clear

- ◆ Command mnemonics : CL

- ◆ Description of function

The CL command has the following two functions:

- Clearing numerical values

Function for clearing the wrong numerical value if a wrong numerical value (decimal value or hexadecimal value enclosed within "/") has been input when specifying the argument or address.

When the "(numerical value)CL" command is received, the numerical value is cleared and the completed status (R) is returned.

- Clearing addresses

Function for clearing addresses specified with the Stop Marker or (Address) Play command.

When the "CL" command is received with no numerical value, the address is cleared and the completed status (R) is returned.

◆ Execution examples

When not a remote control button command

Command	Status	BD player operation
CH	R<CR>	Sets the address mode to CH (Chapter).
99CL5SE<CR>		Searches not for chapter 99 but for chapter 5 and pauses (Still).
	R<CR>	
CH5SM<CR>	R<CR>	Sets the Stop Marker command's specified address to chapter 5.
CL<CR>	R<CR>	Clears the specified address.

When a remote control button command

Command	Status	BD player operation
/A186A181AFB0/CL /A181AFBC/RU<CR>	R<CR>	Turns the power off.
/A186CLA181AFB0 /RU<CR>	E06<CR>	The part between the "/" symbols is the argument, so error (E06) is returned.
/A186A181AFB0 /CLRURU<CR>	E06<CR>	This means processing a remote control button command with no argument, so error (E06) is returned.

3.7.16. Time

◆ Command mnemonics : TM

◆ Description of function

When the address mode is set to TM (Time), it is possible to specify a title or track time by specifying the address.

When the TM command is received, the address mode is set to TM (Time) and the completed status (R) is returned.

◆ Execution examples

Command	Status	BD player operation
TM<CR>	R<CR>	Address mode is set to TM (Time).

3.7.17. Chapter

◆ Command mnemonics : CH

◆ Description of function

When the address mode is set to CH (Chapter), it is possible to specify a chapter by specifying the address.

When the CH command is received, the address mode is set to CH (Chapter) and the completed status (R) is returned.

◆ Execution examples

Command	Status	BD player operation
CH<CR>	R<CR>	Address mode is set to CH (Chapter).

3.7.18. Title

◆ Command mnemonics : TI

◆ Description of function

When the address mode is set to TI (Title), it is possible to specify a title by specifying the address.

When the TI command is received, the address mode is set to TI (Title) and the completed status (R) is returned.

◆ Execution examples

Command	Status	BD player operation
TI<CR>	R<CR>	Address mode is set to TI (Title).

3.7.19. Track

◆ Command mnemonics : TR

◆ Description of function

When the address mode is set to TR (Track), it is possible to specify a track by specifying the address.

When the TR command is received, the address mode is set to TR (Track) and the completed status (R) is returned.

◆ Execution examples

Command	Status	BD player operation
TR<CR>	R<CR>	Address mode is set to TR (Track).

3.7.20. Key Lock

◆ Command mnemonics : (Argument)KL

◆ Description of function

Key Lock sets the lock function. The various functions and arguments are shown below.

○ Tray lock

Disables tray opening/closing

○ Remote control button lock

Disables all remote control buttons.

Operation by RS-232C command is possible.

○ Main unit button lock

Disables all main unit buttons

Operation by RS-232C command is possible.

Argument	Function
0	Off
1	Tray lock + remote control button lock + main unit button lock
2	Tray lock
3	Tray lock + main unit button lock

- When the KL command is received, the lock function is changed and the completed status (R) is returned.
- When the KL command is received while the main unit setting screen is displayed, error (E04) is returned.

◆ Execution examples

Command	Status	BD player operation
1KL<CR>	R<CR>	"Tray lock + remote control button lock + main unit button lock" is set.
3KL<CR>	R<CR>	"Tray lock + main unit button lock" is set.
0KL<CR>	R<CR>	Lock is released.
2KL<CR>	R<CR>	"Tray lock + main unit button lock" is set.

3.7.21. Advanced Playlist Playback

◆ Command mnemonics : (Argument)BS

◆ Description of function

The BS command has the following two functions:

- Plays the playlist from the beginning only when in the stop mode.
 When the "0BS" command is received in the stop mode, the completed status (R) is returned and the playlist is played from the beginning.
 When the "0BS" command is received in the play mode, error (E04) is returned.
- Plays the playlist from the beginning regardless of whether in the play or stop mode.
 When the "1BS" command is received, the completed status (R) is returned and the playlist is played from the beginning.

Argument	Function
0	Starts playlist playback only when in the stop mode.
1	Starts playlist playback.

If the BS command is received when there are no tracks registered in the playlist, error (E04) is returned.

If the BS command is received when the application information is anything other than BDMV/
 DVD-Video, error (E04) is returned.

When the BS command is received while a disc is loading, error (E11) is returned.

◆ Execution examples

Command	Status	BD player operation
		DVD-Video loaded and tracks registered in playlist
1BS<CR>	R<CR>	
		Starts playlist playback.

3.7.22. Current Address Request

- ◆ Command mnemonics : ?A
- ◆ Description of function

When the ?A command is received, the currently playing address information on the table below is returned.

If the value cannot be acquired, error (E04) is returned.

The following shows the application information and address information.

Application information	Address information
BDMV/BDAV	Title no. (3 digits), chapter no. (3 digits), time (6 digits) Time: Time with title start position as 0 seconds
DVD-Video/DVD VR	Title no. (3 digits), chapter no. (3 digits), time (6 digits) Time: Time with title start position as 0 seconds
CD-DA/DTS-CD	Track no. (2 digits), index no. (2 digits), time (4 digits) Time: Time with track start position as 0 seconds

- When the application information is DVD-Video and for other than One Sequential PGC, error (E04) is returned.
- When the application information is BDMV and for HDMV Interactive Title/BD-J Interactive Title, error (E04) is returned.
- When the application information is BDMV and Title_access_type is 11b, error (E04) is returned.

- ◆ Execution examples

Command	Status	BD player operation
		During CD-DA playback
?A<CR>	1201033545<CR>	(Track 12, index 1, 3 minutes 35 seconds)
		During DVD-Video playback
?A<CR>	001035001247<CR>	(Title 1, chapter 35, 12 minutes 47 seconds)

3.7.23. Title (Track) Number Request

- ◆ Command mnemonics : ?R
- ◆ Description of function

When the ?R command is received, the currently playing address information on the table below is returned.

If the value cannot be acquired, error (E04) is returned.

The following shows the application information and address information.

Application information	Address information
BDMV/BD-Video/ DVD-Video/DVD VR	Title no. (3 digits)
CD-DA/DTS-CD	Track no. (2 digits)

◆ Execution examples

Command	Status	BD player operation
		During CD-DA playback
?R<CR>	12<CR>	(Track 12)

3.7.24. Chapter Number Request

◆ Command mnemonics : ?C

◆ Description of function

When the ?C command is received, the currently playing address data on the table below is returned.

If the value cannot be acquired, error (E04) is returned.

The following shows the application information and address information.

Application information	Address information
BDMV/BD-Video/ DVD-Video/DVD VR	Chapter no. (3 digits)

◆ Execution examples

Command	Status	BD player operation
		During DVD-Video playback
?C<CR>	012<CR>	(Chapter 12)

3.7.25. Time Code Request

◆ Command mnemonics : ?T

◆ Description of function

When the ?T command is received, the currently playing address data from the table below is returned.

If the value cannot be acquired, error (E04) is returned.

The following shows the application information and address information.

Application information	Address information
BDMV/BD-Video	Minutes (3 or 4 digits) and seconds (2 digits) Time: Time with title start position as 0 minutes, 0 seconds.
DVD-Video/DVD VR	Minutes (3 or 4 digits) and seconds (2 digits) Time: Time with title start position as 0 minutes, 0 seconds.
CD-DA/DTS-CD	Minutes (3 or 4 digits) and seconds (2 digits) Time: Time with track start position as 0 minutes, 0 seconds.

◆ Execution examples

Command	Status	BD player operation
		During playback
?T<CR>	11742<CR>	(117 minutes 42 seconds)

3.7.26. Index Number Request

◆ Command mnemonics : ?I

◆ Description of function

When the ?I command is received, the currently playing address data from the table below is returned.

If the value cannot be acquired, error (E04) is returned.

The following shows the application information and address information.

Application information	Address information
CD-DA/DTS-CD	Track no. (2 digits) and index no. (2 digits) Index: Number with track start position as 0.

◆ Execution examples

Command	Status	BD player operation
		During CD-DA playback
?I<CR>	0102<CR>	(Track 1, index 2)

3.7.27. DVD Disc Status Request

◆ Command mnemonics ; ?V

◆ Description of function

When the ?V command is received, the DVD's status is returned.

If the ?V command is received when the disc physical data is BD/CD, error (E04) is returned.

○ Disc physical information (DVD) (C1)

When the disc physical information is DVD, "Yes (1)" is returned.

When the disc physical information is no disc, "No (0)" is returned.

"Unknown (X)" is returned while the disc physical data is being acquired.

○ Chapter search (C4)/time search (C5)

During playback when the application information is DVD-Video/DVD VR, whether or not chapter searching/time searching is possible is returned.

"Unknown (X)" is returned if the information cannot be acquired or if the application information is something other than DVD-Video/DVD VR.

The information returned is as shown below. (C1C2C3C4C5<CR>)

DVD disc physical info (C1)	Not used (C2)	Not used (C3)	Chapter search (C4)	Time search (C5)
0 = None	X (fixed)	X (fixed)	0 = Not possible	0 = Not possible
1 = Yes			1 = Possible	1 = Possible
X = Unknown			X = Unknown	X = Unknown

◆ Execution examples

Command	Status	BD player operation
?V<CR>	0XXXX<CR>	No disc
?V<CR>	1XX10<CR>	Chapter searching possible Time searching not possible
?V<CR>	1XXXX<CR>	DVD present and stopped
?V<CR>	E04<CR>	Disc other than DVD

3.7.28. BD Disc Status Request

◆ Command mnemonics : ?J

◆ Description of function

When the ?J command is received, the BD's status is returned.

However, if the ?J command is received when the disc physical data is DVD/CD, error (E04) is returned.

- Disc physical information (BD) (C1)
 - When the disc physical information is BD, "Yes (1)" is returned.
 - When the disc physical information is no disc, "No (0)" is returned.
 - "Unknown (X)" is returned while the disc physical information is being acquired.
- Chapter search (C4)/time search (C5)
 - During playback when the application information is BDMV/BDAV, whether or not chapter searching/time searching is possible is returned.
 - "Unknown (X)" is returned if the information cannot be acquired or if the application information is something other than DVD-Video/DVD VR.

The information returned is shown below. (C1C2C3C4C5<CR>)

BD disc physical info (C1)	Not used (C2)	Not used (C3)	Chapter search (C4)	Time search (C5)
0 = None	X (fixed)	X (fixed)	0 = Not possible	0 = Not possible
1 = Yes			1 = Possible	1 = Possible
X = Unknown			X = Unknown	X = Unknown

◆ Execution examples

Command	Status	BD player operation
?J<CR>	0XXXX<CR>	No disc
?J<CR>	1XX10<CR>	Chapter searching possible Time searching not possible
?J<CR>	1XXXX<CR>	BD present and stopped

?J<CR>	E04<CR>	Disc other than BD
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3.7.29. Get Information

- ◆ Command mnemonics : ?D
- ◆ Description of function

When the ?D command is received, the disc type is returned.

○ Disc loaded (C1)

When the disc physical information is BD/DVD/CD, "Yes (1)" is returned.

When the disc physical information is no disc, "No (0)" is returned.

"Unknown (X)" is returned if the disc physical information is being acquired.

○ Disc physical information (C2)

When the disc physical information is BD/DVD/CD, the respective value is returned.

When the disc physical information is no disc, "Unknown (X)" is returned.

"Unknown (X)" is returned while the disc physical information is being acquired.

○ Application information (C3)

When the application information is BDMV/BDAV/DVD-Video/DVD VR/CD-DA/DTS-CD, the respective value is returned.

When the application information is something other than BDMV/BDAV/DVD-Video/DVD VR/CD-DA/DTS-CD, "Unknown (X)" is returned.

When the application information is no disc, "Unknown (X)" is returned.

"Unknown (X)" is returned while the application information is being acquired.

The information returned is as shown below. (C1C2C3<CR>)

Disc loaded (C1)	Disc physical info (C2)	Application information (C3)
0 = None	0 = BD	0 = BDMV
1 = Yes	1 = DVD	1 = BDAV
X = Unknown	2 = CD	2 = DVD-Video
	X = Unknown	3 = DVD VR
		4 = CD-DA
		5 = DTS-CD
		X = Unknown

- ◆ Execution examples

Command	Status	BD player operation
?D<CR>	100	BD disc, more precisely BDMV disc playing or stopped.
?D<CR>	112	DVD disc, more precisely DVD-Video disc playing or stopped.
?D<CR>	XXX	Disc loading

3.7.30. CD Disc Status Request

- ◆ Command mnemonics : ?K
- ◆ Description of function

When the ?K command is received, the CD's status is returned.

However, if the ?K command is received when the disc physical data is BD/DVD, error (E04) is returned.

- Disc physical information (CD) (C1)

When the disc physical information is CD, "Yes (1)" is returned.

When the disc physical information is no disc, "No (0)" is returned.

"Unknown (X)" is returned while the disc physical information is being acquired.

- DTS-CD (C2)

When the disc physical data is CD and the application data is DTS-CD, "Yes (1)" is returned.

When the disc physical data is CD and the application data is something other than DTS-CD, "No (0)" is returned.

When the disc physical data is no disc, "No (0)" is returned.

"Unknown (X)" is returned while the disc physical data is being acquired.

- Total number of tracks on disc (C3) (C4)

When the disc physical data is CD and the application data is CD-DA/DTS-CD, the total number of tracks (2 digits) is returned.

If the total number of tracks on the disc cannot be acquired, "Unknown (X)" is returned.

If the disc physical data is CD and the application data is something other than CD-DA/DTS-CD, "Unknown (X)" is returned.

"Unknown (X)" is returned when the disc physical data is no disc.

"Unknown (X)" is returned while the disc physical data is being acquired.

- Total playing time of disc (C5) (C6) (C7) (C8)

When the disc physical data is CD and the application data is CD-DA/DTS-CD, the disc's total playing time is returned in 2 digits for the minutes and 2 digits for the seconds.

If the disc's total playing time is 100 minutes or more, 99 minutes 59 seconds is returned.

If the disc physical data is CD and the application data is something other than CD-DA/DTS-CD, "Unknown (X)" is returned.

"Unknown (X)" is returned when the disc physical data is no disc.

"Unknown (X)" is returned while the disc physical data is being acquired.

The information returned is as shown below. (C1C2C3C4C5C6C7C8<CR>)

CD disc physical information (C1)	DTS-CD (C2)
0 = No 1 = Yes X = Unknown	0 = No 1 = Yes X = Unknown
2nd digit of total no. tracks on disc (C3)	1st digit of total no. tracks on disc (C4)
0 to 9 = Acquired value is displayed X = Unknown	0 to 9 = Acquired value is displayed X = Unknown
2nd digit of disc's total playing time (minutes) (C5)	1st digit of disc's total playing time (minutes) (C6)
0 to 9 = Acquired value is displayed X = Unknown	0 to 9 = Acquired value is displayed X = Unknown
2nd digit of disc's total playing time (seconds) (C7)	1st digit of disc's total playing time (seconds) (C8)
0 to 5 = Acquired value is displayed X = Unknown	0 to 9 = Acquired value is displayed X = Unknown

◆ Execution examples

Command	Status	BD player operation
?K<CR>	0XXXXXXXX<CR>	No disc
?K<CR>	11124530<CR>	DTS-CD with a total of 12 tracks and a total playing time of 45 minutes 30 seconds playing or stopped
?K<CR>	11127530<CR>	DTS-CD with a total of 12 tracks and a total playing time of 75 minutes 30 seconds playing or stopped
?K<CR>	10999959<CR>	CD-DA with a total of over 99 tracks and a total playing time of over 100 minutes
?K<CR>	E04<CR>	Disc other than CD

3.7.31. Player Active Mode Request

◆ Command mnemonics : ?P

◆ Description of function

When the ?P command is received, the BD player's operating mode on the table below is returned.

The table below shows the operating mode and BD player status.

Operating mode	BD player status
P00	Tray opening is completed. Status from tray closing to disc physical information loading.
P01	Tray closing is completed with no disc in tray. Tray closing is completed, disc physical information loading is completed and disc is not playing.
P02	Disc information loading
P03	Tray opening
P04	Normal playback Searching with repeat operation
P05	Pausing (Still)
P06	Pausing (Pause)
P07	Searching Not including searching with repeat operation
P08	Forward/reverse scanning
P09	Forward/reverse slow play

◆ Execution examples

Command	Status	BD player operation
		During normal playback
?P<CR>	P04<CR>	
ST<CR>		Pausing (Still)
	R<CR>	
?P<CR>	P05<CR>	

3.7.32. Player Model Name Request

- ◆ Command mnemonics : ?L
- ◆ Description of function

When the ?L command is received, the BD player's model name is returned.

- ◆ Execution examples

Command	Status	BD player operation
?L<CR>	BDP-V6000<CR>	BD player's model name - BDP-V6000

3.7.33. Slow

- ◆ Command mnemonics : (Argument)SW
- ◆ Description of function

When the "(Argument)SW" command is received during playback, the slow play mode is set and the completed status (R) is returned.

If the requested action is invalid, error (E04) is returned.

If a direction or speed not supported by the application is specified, error (E04) is returned.

When the "(Argument)SW" command is received in the stop mode, error (E04) is returned.

The following shows the arguments and the direction of slow play.

Argument	Direction	Speed
1	Forward	1/16
2	Forward	1/8
3	Forward	1/4
4	Forward	1/2
5	Reverse	1/16

- ◆ Execution examples

Command	Status	BD player operation
		During normal playback
1SW		1/16 slow play in forward direction
	R<CR>	

3.7.34. Error Code Request

- ◆ Command mnemonics : ?E
- ◆ Description of function

When the ?E command is received, the most recent error code generated after the player powers back On, the error code is returned. This error code is the error status (E04, E06, etc.) returned in response to the different commands. 00 is returned if there is no most recent error code.

◆ Execution examples

Command	Status	BD player operation
		With no error code having been returned
?E<CR>	00<CR>	
		With the error code last returned E04
?E<CR>	E04<CR>	

3.7.35. Menu Call

◆ Command mnemonics : (Argument)MC

◆ Description of function

When there is a menu available on the disc and the player receives the MC command with an argument, the menu is displayed and the completed status (R) is returned.

If there is no disc menu, error (E04) is returned.

If the MC command is received with no argument while the disc menu is displayed, playback resumes.

If the disc menu is not displayed, error (E04) is returned.

The disc menu type is specified by the argument. The following shows the arguments and disc menu types.

Argument	Disc menu type
1	Title menu (DVD-Video)
2	Root menu (DVD-Video)
3	Pop-up menu (BDMV)
4	Top menu (BDMV)

◆ Execution examples

Command	Status	BD player operation
		During BDMV playback
4MC<CR>		The top menu is called out.
	R<CR>	
MC<CR>		Resumes.
	R<CR>	

3.7.36. Numeric Button

◆ Command mnemonics : (Argument)NB

◆ Description of function

When the NB command is received with an argument (decimal) while the disc menu is displayed, the argument number is selected and executed.

If the argument number is invalid, error (E04) is returned.

The operation after the number is executed depends on the disc.

If the NB command is received when the disc menu is not displayed, error (E04) is returned.

◆ Execution examples

Command	Status	BD player operation
		While disc menu displayed
3NB<CR>		Button 3 selected and executed.
	R<CR>	

3.7.37. Button Select

◆ Command mnemonics : (Argument)CU

◆ Description of function

When the CU command is received with an argument while the disc menu is displayed, the navigation (arrow) request is processed and the completed status (R) is returned.

If the navigation request is invalid, error (E04) is returned.

If the CU command is received when the disc menu is not displayed, error (E04) is returned.

The direction is specified by the argument. The following table lists the Argument for each direction.

Argument	Arrow type
1	↑
2	↓
3	←
4	→

◆ Execution examples

Command	Status	BD player operation
		While disc menu displayed
2CU<CR>		Button below currently selected button is selected.
	R<CR>	

3.7.38. Enter Button

◆ Command mnemonics : ET

◆ Description of function

When the ET command is received while the disc menu is displayed, the Enter command is processed and the completed status (R) is returned.

If the requested action is invalid, error (E04) is returned.

If the ET command is received when the disc menu is not displayed, error (E04) is returned.

◆ Execution examples

Command	Status	BD player operation
		While disc menu displayed
ET<CR>		Currently selected button is executed.
	R<CR>	

NOTE: This player does not support address-specified ET commands.

3.7.39. Firmware Version Request

◆ Command mnemonics : ?Z

◆ Description of function

When the ?Z command is received, the BD player's firmware version is returned.

◆ Execution examples

Command	Status	BD player operation
?Z<CR>	1.00<CR>	(Firmware version 1.00)

3.7.40. Remote Control Button

◆ Command mnemonics : / (Argument) / RU

◆ Description of function

When the / (Argument) / RU command is received, the command that equates to a specific remote control button is processed and the completed status (R) is returned.

For the RU command's arguments, refer to "Table 4 - Remote Control Button Commands".

◆ Execution examples

Command	Status	BD player operation
		During playback
/A181AF38/RU<CR>	R<CR>	Playback stops