

## DVD Player DN-V300 Serial Control Instructions

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D&M Holdings Inc.

## History

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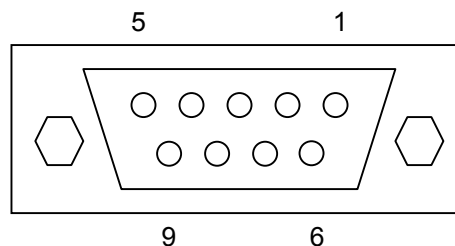
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# 1 Serial Remote Control Terminal

Remote control of the DN-V300 is possible by connecting the serial interface of a PC, etc., to the serial remote terminal on the rear panel. The commands usable with serial remote are categorized in three groups, the PC group controlling the DN-V300, the PS group for acquiring information on the DN-V300's operating status, and the PR group of status information issued asynchronously from the DN-V300 in response to changes in operating status. The details of the commands are described each group. The DN-V300's serial remote terminal is compatible with RS-232C standards.

Standards	Conforming to RS-232C
Connector type	D-sub female 9-pin
Synchronization	Asynchronous
Baud rate	9,600 bps
Data length	8 bits
Parity	None
Stop bit	1 bit
Flow control	None



[ D-sub 9pin female connector ]  
DN-V300 side

DN-V300 side

Pin No.	Signal name	Input/Output (DN-V300)
1	No connection	-
2	TXD	Output
3	RXD	Input
4	No connection	-
5	GND	-
6	No connection	-
7	CTS	Input
8	RTS	Output
9	No connection	-

## NOTES

- Use a male/female serial straight cable to connect to a personal computer.
- To prevent damage to the DN-V300 and the controller, turn off the power of both the DN-V300 and the controller when connecting the serial cable.
- Also be sure the settings of the control side's communications specifications (data length, baud rate, stop bit, flow and parity) match those of the DN-V300 (shown on the table above at the left).
- The DN-V300 cannot be used with CTS and RTS signals. If such signals are being received and controlled on the controller, take the proper measures for the controller's software and/or hardware.

### ■ Basic Protocol for Sending and Receiving Commands

The basic protocol of this interface is a method in which the device with which serial communications are possible (hereafter called “the controller”) issues commands and the DN-V300 returns the message that execution has been completed.

When using a personal computer, serial communications are possible using Hyper Terminal included as a standard with Windows95™ and later.

### ■ Command format

ASCII character codes are used for commands and messages. Command sections are expressed with two characters. Only the command texts specified for a combination of capital and small letters the each command can be received.

The basic format of transmission commands is [group,command,parameterlist], terminated by the <CR> code (0DH). The DN-V300 recognizes the end of a command through this code.

The parameter ranges are defined for each command (some commands have no parameters), so send in a format conforming to that command's specifications.

Example: Controller [PC,PlayT,1]<CR> : Issues a command for playing Title No. 1.

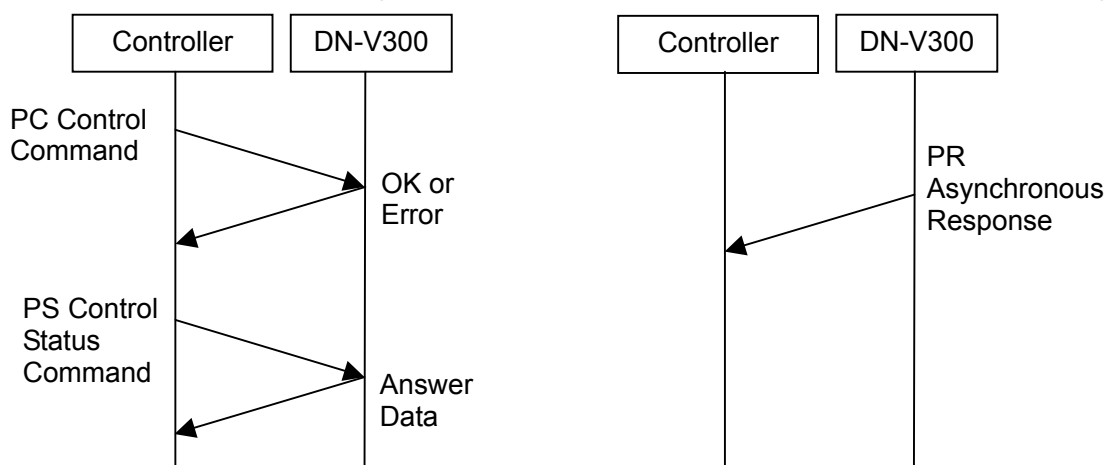
DN-V300 [PC,PlayT,0] : The DN-V300 plays the assigned title and returns the error code 0 (no error).

### ■ Command transmission and reply message

When the DN-V300 receives a command and completes the instructed task or when an error occurs, the DN-V300 returns a reply message to the controller. The reply message consists of the sent command to which an error code is added. There are five types of error codes:

- Error code indicating acknowledge reception: 0
- Error code indicating that an error of undetermined cause has arisen: 1
- Error code indicating that the sent parameter is invalid for the DN-V300's operating status: 2
- Error code indicating that the command is invalid due to a parameter range or format violation: 5
- Error code indicating that the command is invalid for the loaded disc type: 10

The different commands corresponding to the various device statuses are shown on the table on page 8.



1. PC group : External control of the DN-V300 using various commands from the controller.
2. PS group : Request of sending of operating status from the controller to the DN-V300.
3. PR group : Issue of description of change of status when DN-V300 is not synchronized due to a change of status.

## Serial Remote Control (continued)

Send one command at a time.

Example: When playing a DVD, pause after playing Title 1.

[PC,PlayT,1]<CR>	→ Command to play Title 1 sent from controller.
[PC,PlayT,0]	← Reply of error code 0 (no error) from DN-V300.
[PC,RC,48]<CR>	→ Pause command sent from controller.
[PC,RC,0]	← Reply of error code 0 (no error) from DN-V300.
[PR,StatusChange,0,5]	← Issue of status change (pause) message from DN-V300.

### ■ Error codes

If the structure of the command from the controller was wrong or the contents of the command were invalid for any reason, a message consisting of an error code added to the sent command is returned.

List of error codes

Error code	Name	Description
0	No error	Message received normally.
1	Cause of error not known	Error of unknown cause has arisen.
2	Invalid parameter	Invalid parameter received.
5	Command not valid	Invalid message structure detected. Parameter outside of specified range received.
10	Command not valid for Current disc	Message invalid for current disc type received.

Example: When a command for starting to play Title 80 on a disc only including 20 titles was sent.

[PC,PlayT,80]<CR>	→ Command to play Title 80 sent from controller.
[PC,PlayT,2]	← Error code 2 returned from DN-V300 and no response.

### ■ Command reference

Commands are combinations of two ASCII code characters.

The basic format of transmission commands is **[group,command,parameterlist]<CR>**.

I . External Control Commands: List of PC group external control commands

	Command name	Command	Function	Parameter range
1	Remote control command	RC	Perform same command as for infrared remote control operation.	See list of PC RC command control parameters
2	Play Title or Track	PlayT	Play assigned title or track number.	0 to 99
3	Play Chapter	PlayC	Play assigned chapter number.	Title : 1 to 99 Chapter : 1 to 999
4	Time search	Time	Play starting at specified time.	H : 0 to 6 m : 0 to 59 s : 0 to 59
5	Set audio stream	SetAST	Set the DVD audio stream number.	1 to 8
6	Set sub-picture stream	SetSPST	Set the DVD sub-picture stream number.	0 to 32
7	SW on/off OSD display	OSD	Turn the OSD display on (displayed) or off (not displayed).	ON/OFF
8	SW on/off Local keyboard Lock	LKC	Turn the main unit front panel's lock on (panel's key lock) or off (panel's key available).	ON/OFF
9	SW on/off IR remote control	RCC	Turn IR remote control on or off.	ON/OFF

## Serial Remote Control (continued)

List of PC RC command control parameters

RC codes ( decimal )	Keys/Functions	RC codes ( decimal )	Keys/Functions	RC codes ( decimal )	Keys/Functions
0	Digit 0	44	PLAY	131	RETURN
1	Digit 1	48	STILL/PAUSE	133	ANGLE
2	Digit 2	49	STOP	180	+10
3	Digit 3	59	A-B REPEAT	181	CLEAR
4	Digit 4	66	OPEN/CLOSE	182	CALL
5	Digit 5	75	SUBTITLE	183	NTSC/PAL
6	Digit 6	78	AUDIO	184	SLIDE SHOW
7	Digit 7	84	TOP MENU/PBC	200	DISPLAY
8	Digit 8	88	CURSOR UP	245	SKIP-
9	Digit 9	89	CURSOR DOWN	246	SKIP+
12	DVD POWER	90	CURSOR LEFT	247	ZOOM
28	RANDOM	91	CURSOR RIGHT	251	PROG/DIRECT
29	REPEAT	92	ENTER		
40	SLOW/SEARCH+	113	MENU		
41	SLOW/SEARCH-	130	SETUP		

II . External Control Status: List of PS group status confirmation commands

	Command name	Command	Function	Parameter range
10	Get player status	GetStatus	Get DN-V300's operating status.	0 to 5
11	Get current disc type	GetDiscType	Get type of disc loaded in DN-V300.	0 to 4
12	Get current audio stream No.	GetAST	Get audio stream number setting.	1 to 8
13	Get current sub-picture stream No.	GetSPST	Get sub-picture stream number setting.	0 to 32
14	Get current Title or Track No.	GetT	Get current title or track number.	0 to 99
15	Get current chapter No.	GetC	Get current title and chapter number.	Title : 1 to 99 Chapter : 1 to 999

Status codes                      0: Error, 1: Opened, 2: No Disc, 3: Stopped, 4: Playing, 5: Paused

Disc Type code                      0: No Disc, 1: DVD, 2: VCD/SVCD, 3: CD-DA, 4: MP3 (CD-R/RW)

III . Asynchronous Responses: List of PR group status change notification commands

	Command name	Command	Function	Parameter range
16	End of Title or Track	EOT	Notify number of title or track for which playback has ended.	0 to 99
17	Start of a chapter	SOC	Notify number of chapter that has started playing.	Title : 1 to 99 Chapter : 1 to 999
18	End of a chapter	EOC	Notify number of chapter for which playback has ended.	Title : 1 to 99 Chapter : 1 to 999
19	Execution of a command	StatusChange	Notify change of DN-V300's operating status.	0 to 5 see Status code
20	Error notification	Error	Notify that error has occurred.	0, 1, 2, 5, 10 See Error code

# DN-V300 Serial Remote Control

PC control		V300 Response															
group	command	PLAY					PAUSE	STOP				OPEN	LOADING	No Disc	DVD RESUME	DVD Menu /other Play	VCD PBC PLAY
		DVD	CD	VCD(PBC ON)	VCD(PBC OFF)	MP3/JPEG	All Disc	DVD	CD	VCD: PBC OFF	MP3/JPEG						
PC	RC	Doesn't use Code: Error code2, Disc difference Code: Error code10, Dimension over Code: Error code5															
	PlayT	OK->Title Play NG->Error code2	OK ->Track Play NG->Error code2	Error code10	OK->Track Play NG->Error code2	Error code10	Same as PLAY (On CDDA: Keep Pause mode when controlled by PlayT)	OK->Title Play NG->Error code2	OK ->Track Play NG ->Error	OK->Track Play NG->Error code2	Error code10	Error code10	No response	Error code10	Error code10	Error code10	Error code10
	PlayC	OK ->Title&Chapter PLAY ChapNG ->Error code2 TitleNG ->Error code2	Error code10	Error code10	OK ->Title&Chapter PLAY ChapNG ->Error code2 TitleNG ->Error code2	Error code10		Same as PLAY	Error code10	OK ->Title&Chapter PLAY ChapNG ->Error code2 TitleNG ->Error code2	Error code10	Error code10	No response	Error code10	Error code10	Error code10	Error code10
	Time	OK->Time Play NG->Error code2	Error code10	Error code10	Error code10	Error code10		OK->Time Play NG->Error code2	Error code10	Error code10	Error code10	Error code10	No response	Error code10	Error code10	Error code10 or Time Play or Error code2	Error code10
	SetAST	OK->Set AST NG->Error code2	Error code10	Error code10	Error code10	Error code10		Error code10	Error code10	Error code10	Error code10	Error code10	No response	Error code10	Error code10	Error code10 or Set AST or Error code2	Error code10
	SetSPST	OK->SetSPST NG->Error code2	Error code10	Error code10	Error code10	Error code10		Error code10	Error code10	Error code10	Error code10	Error code10	No response	Error code10	Error code10	Error code10 or Set SPST or Error code2	Error code10
	OSD	Set OSD ON/OFF ( = Hide OSD OFF/ON )															
	LKC	Set LKC ON/OFF															
	RCC	Set RCC ON/OFF ( = IR remote Lock Off/ON )															
PS	GetStatus	Status: 4					Status: 5	Status: 3				Status1	No response No response	Status2	Status3	Status4	Status4
	GetDiscType	Code: 1	Code: 3	Code: 2	Code: 2	Code: 4	Same as Play	Code: 1	Code: 3	Code: 2	Code: 4	Code: 0	No response No response	Code: 0	Code: 1	Code: 1	Code: 2
	GetAST	Current No.	Error code10	Error code10	Error code10	Error code10		Error code10	Error code10	Error code10	Error code10	Error code10	No response No response	Error code10	Memorized No.	Error code10 or Current No	Error code10
	GetSPST	Current No.	Error code10	Error code10	Error code10	Error code10		Error code10	Error code10	Error code10	Error code10	Error code10	No response No response	Error code10	Memorized No.	Error code10 or Current No	Error code10
	GetT	Current No.	Current No.	Error code10	Current No.	Current No.		Error code10	Error code10	Error code10	Error code10	Error code10	No response No response	Error code10	Memorized No.	Error code10 or Current No	Error code10
	GetC	Current No.	Error code10	Error code10	Current No. chapter=1	Error code10		Error code10	Error code10	Error code10	Error code10	Error code10	No response No response	Error code10	Memorized No.	Error code10 or Current No	Error code10

NG parameter response: Don't care



### ■ Detailed Description of Commands

#### I. External Control Commands: PC group

Detailed description of the external control commands in the PC group

##### 1. Remote control command (RC) ---- Valid in the same way as IR remote control

<Format> [PC,RC,RC code]<CR>

(For the RC code, refer to the PC RC command control parameters on page 7.)

<Reply> [PC,RC,Error code] (For the error codes, refer to the list of error codes on page 6.)

<Details> •All IR remote control key operations can be controlled by serial remote.

•Send RC codes following the “List of PC RC command control parameters”.

Example: To start playback

[PC,RC,44]<CR> → Code 44 (Play) is sent from the controller.

[PC,RC,0] ← Error code 0 (no error) is returned from the DN-V300 and playback starts.

※When in the power off standby mode, basically PS and PC group commands are not accepted.

The following three PC RC commands are accepted, however.

[PC,RC,12]<CR> ( DVD POWER )

[PC,RC,44]<CR> ( PLAY )

[PC,RC,66]<CR> ( OPEN/CLOSE )

##### 2. Play title or track command ( PlayT ) ----- Valid for DVDs, CDs, and VCD/SVCD (only when PBC off) discs

<Format> [PC,PlayT,Title or Track No.]<CR>

<Reply> [PC,PlayT,Error code] (For the error codes, refer to the list of error codes on page 6.)

<Details> •For DVDs and VCDs: In the stop, play and pause modes, playback of the assigned title starts.

•For CDs: In the stop, play and pause modes, playback of the assigned track starts. In the pause mode, however, the player remains in the pause mode.

•If a title or track number that does not exist on the disc is specified, error code 2 is returned and control is not accepted.

•For CD-R/RW discs containing MP3 files, JPEG files, etc., error code 10 is returned and control is not accepted.

Example: To start playing title 1

[PC,PlayT,1]<CR> → The command to play title 1 is sent from the controller.

[PC,PlayT,0] ← Error code 0 (no error) is returned from the DN-V300 and playback starts.

##### 3. Play chapter command ( PlayC ) ---- Valid for DVDs and VCD/SVCD (only when PBC off) discs

<Format> [PC,PlayC,Title No.,Chapter No.]<CR>

<Reply> [PC,PlayC,Error code] (For the error codes, refer to the list of error codes on page 6.)

<Details> •In the stop, play and pause modes, the specified chapter of the assigned title's chapter starts playing.

•If a title or chapter that does not exist on the disc is specified, error code 2 is returned.

•If a disc other than a DVD or VCD (only when PBC off) is loaded, error code 10 is returned and control is not accepted.

•For VCDs, title numbers are handled as track numbers, chapter numbers as entry numbers, and the entry number is fixed to “1”.

Example: To start playing title 1 chapter 5

[PC,PlayC,1,5]<CR> → The command to play title 1 chapter 5 is sent from the controller.

[PC,PlayC,0] ← Error code 0 (no error) is returned from the DN-V300 and playback starts.

## Description of PC Commands (continued)

### 4. Time search command ( Time ) ---- Valid for DVDs

<Format> [PC,Time,hour,minute,second]<CR>

<Reply> [PC,Time,Error code] (For the error codes, refer to the list of error codes on page 6.)

<Details> • In the stop, play and pause modes, playback starts from the specified time.  
 • If a time that does not exist on the disc is specified, error code 2 is returned.  
 • If a disc other than a DVD is loaded, error code 10 is returned and control is not accepted.  
 • If the time is specified from the stop mode, the specified time in the main title is played.  
 • For discs on which there is no navigation data for the main title, the title with the longest recording time is handled as the main title and played.

Example: To start playback from 0 hours, 50 minutes, 30 seconds

[PC,Time,0,50,30]<CR> → The command to start playback from the specified time is sent from the controller.

[PC,Time,0] ← Error code 0 (no error) is returned from the DN-V300 and playback starts.

### 5. Set audio stream setting command ( SetAST ) ---- Valid for DVDs

<Format> [PC,SetAST,Audio stream No.]<CR>

<Reply> [PC,SetAST,Error code] (For the error codes, refer to the list of error codes on page 6.)

<Details> • In the play or pause mode on a DVD, sets the audio stream selection.  
 • If a stream number that does not exist on the disc is specified, error code 2 is returned.  
 • If a disc other than a DVD is loaded, error code 10 is returned and control is not accepted.  
 • The set stream number is only valid within the currently playing title. If the title is changed, the stream number is reset according to the navigation data of the newly playing title. (If nothing is specified in the navigation data, the setting remains valid.)

Example: To set to audio stream 1

[PC,SetAST,1]<CR> → Audio stream 1 is sent from the controller.

[PC,SetAST,0] ← Error code 0 (no error) is returned from the DN-V300 and the setting is made.

### 6. Set sub-picture stream command ( SetSPST ) ---- Valid for DVDs

<Format> [PC,SetSPST,Sub-picture stream No.]<CR>

<Reply> [PC,SetSPST,Error code] (For the error codes, refer to the list of error codes on page 6.)

<Details> • In the play or pause mode on a DVD, sets the sub-picture stream selection.  
 • If a stream number that does not exist on the disc is specified, error code 2 is returned.  
 • If a disc other than a DVD is loaded, error code 10 is returned and control is not accepted.  
 • The set stream number is only valid within the currently playing title. If the title is changed, the stream number is reset according to the navigation data of the newly playing title. (If nothing is specified in the navigation data, the setting remains valid.)  
 • To turn the sub-picture off, set the stream number to "0".

Example: To set to sub-picture stream 1

[PC,SetSPST,1]<CR> → Sub-picture stream 1 is sent from the controller.

[PC,SetSPST,0] ← Error code 0 (no error) is returned from the DN-V300 and the setting is made.

## Description of PC Commands (continued)

7. SW on/off OSD setting command ( OSD ) ---- Valid when the power is on  
<Format> [PC,OSD,ON or OFF]<CR>  
<Reply> [PC,OSD,Error code] (For the error codes, refer to the list of error codes on page 6.)  
<Details> •Sets whether on or not to display the OSD and the icons that appear on the screen.  
•When the OSD is turned off, "HIDE OSD LED" lights on the front panel.  
•When the OSD is turned off, the setup and display operations, etc., are disabled.  
Example: To turn the OSD off  
[PC,OSD,OFF]<CR> → The command for turning the OSD off is sent from the controller.  
[PC,OSD,0] ← Error code 0 (no error) is returned from the DN-V300 and the setting is made.
8. SW on/off local keyboard lock setting command ( LKC ) ---- Valid when the power is on  
<Format> [PC,LKC,ON or OFF]<CR>  
<Reply> [PC,LKC,Error code] (For the error codes, refer to the list of error codes on page 6.)  
<Details> •Sets whether to lock or unlock the front panel keys.  
•When the lock is turned on, the "KEY LOCK" LED on the front panel lights.  
•When the lock is turned on, operation of all of the keys on the front panel aside from the AC switch is disabled.  
Example: To turn the key lock mode on  
[PC,LKC,ON]<CR> → The command for turning the key lock mode on is sent from the controller.  
[PC,LKC,0] ← Error code 0 (no error) is returned from the DN-V300 and the setting is made.
9. SW on/off IR remote control setting command ( RCC ) ---- Valid when the power is on  
<Format> [PC,RCC,ON or OFF]<CR>  
<Reply> [PC,RCC,Error code] (For the error codes, refer to the list of error codes on page 6.)  
<Details> •Sets whether to enable or disable the infrared remote control keys.  
•When RCC is set to OFF, "IR REMOTE LOCK" lights on the front panel.  
•When RCC is set to OFF, operation of all of the keys on the remote control is disabled.  
Example: To set RCC to OFF  
[PC,RCC,OFF]<CR> → The command for setting RCC to OFF is sent from the controller.  
[PC,RCC,0] ← Error code 0 (no error) is returned from the DN-V300 and the setting is made.

## II . External Control Status: PS group

Detailed description of the status confirmation commands

## 10. Get player status confirmation request ( GetStatus ) ---- Valid when the power is on

&lt;Format&gt; [PS,GetStatus]&lt;CR&gt;

&lt;Reply&gt; [PS,GetStatus,Error code,Status code]

(For the error codes, refer to the list of error codes on page 6.)

&lt;Details&gt; •Sends a request for the DN-V300's operating status.

•In response to the request, the DN-V300 returns the error code corresponding to the sent command and the status code indicating the DN-V300's status.

•During loading, the DN-V300 does not respond to the command, and the received command is not valid. Send the command again after loading is completed or until there is a response.

List of status codes

Code	Name	Description
0	Error	Disc error or other problem has arisen
1	Opened	Tray is open
2	No Disc	Tray is closed by no disc is loaded
3	Stopped	Stop mode condition
4	Playing	Play mode condition
5	Pause	Still or pause mode condition

Example: To get the DN-V300's operating status

[PS,GetStatus]&lt;CR&gt; → A request for the DN-V300's operating status is sent from the controller.

[PS,GetStatus,0,4] ← The sent message's error code 0 (no error) and status code 4 (Playing) are returned from the DN-V300.

## 11. Get current disc type confirmation request ( GetDiscType ) ---- Valid when the power is on

&lt;Format&gt; [PS,GetDiscType]&lt;CR&gt;

&lt;Reply&gt; [PS,GetDiscType,Error code,Disc Type code]

(For the error codes, refer to the list of error codes on page 6.)

&lt;Details&gt; •Sends a request for the status of the disc loaded in the DN-V300.

•In response to the request, the DN-V300 returns the error code corresponding to the sent command and the disc type code indicating the loaded disc type.

•During loading, the DN-V300 does not respond to the command, and the received command is not valid. Send the command again after loading is completed or until there is a response.

List of disc type codes

Code	Disc type	Description
0	No Disc	Tray is open or no disc is loaded
1	DVD	
2	VCD/SVCD	
3	CD-DA	
4	MP3	A CD-R/RW disc containing MP3 or JPEG files is loaded

Example: To get the DN-V300's disc type

[PS,GetDiscType]&lt;CR&gt; → A request for the disc type is sent from the controller.

[PS,GetDiscType,0,1] ← The sent message's error code 0 (no error) and disc type code 1 (DVD) are returned from the DN-V300.

## Description of PS Commands (continued)

12. Get current audio stream number confirmation request ( GetAST ) ---- Valid for DVDs
- <Format> [PS,GetAST]<CR>
- <Reply> [PS,GetAST,Error code,Audio stream No.]  
(For the error codes, refer to the list of error codes on page 6.)
- <Details> • In the play or pause mode on a DVD, requests the currently selected audio stream setting.  
• In response to the request, the DN-V300 returns the error code corresponding to the sent command and the current audio stream number.  
• If a disc other than a DVD is loaded, error code 10 is returned and control is not accepted.
- Example: To get the DN-V300's audio stream number selection  
[PS,GetAST]<CR> → A request for the current stream number is sent from the controller.  
[PS,GetAST,0,2] ← The sent message's error code 0 (no error) and stream number 2 are returned from the DN-V300.
13. Get current sub-picture stream number confirmation request ( GetSPST ) ---- Valid for DVDs
- <Format> [PS,GetSPST]<CR>
- <Reply> [PS,GetSPST,Error code,sub-picture stream No.]  
(For the error codes, refer to the list of error codes on page 6.)
- <Details> • In the play or pause mode on a DVD, requests the currently selected sub-picture stream setting.  
• In response to the request, the DN-V300 returns the error code corresponding to the sent command and the current audio stream number.  
• If a disc other than a DVD is loaded, error code 10 is returned.
- Example: To get the DN-V300's sub-picture stream number selection  
[PS,GetSPST]<CR> → A request for the current stream number is sent from the controller.  
[PS,GetSPST,0,2] ← The sent message's error code 0 (no error) and stream number 2 are returned from the DN-V300.
14. Get current title or track number confirmation request ( GetT ) ---- Valid for DVDs, CDs, and VCD/SVCD (only when PBC off) discs and for MP3 (CD-R/RW) discs
- <Format> [PS,GetT]<CR>
- <Reply> [PS,GetT,Error code,Title or Track No.]  
(For the error codes, refer to the list of error codes on page 6.)
- <Details> • In the play or pause mode, requests the current title or track number.  
• In response to the request, the DN-V300 returns the error code corresponding to the sent command and the current title or track number.  
• For VCDs when PBC is on, error code 10 is returned .
- Example: To get the title number on the DVD currently playing on the DN-V300  
[PS,GetT]<CR> → A request for the current title or track number is sent from the controller.  
[PS,GetT,0,5] ← The sent message's error code 0 (no error) and title number 5 are returned from the DN-V300.

## Description of PS Commands (continued)

15. Get current title and chapter number confirmation request ( GetC ) ---- Valid for DVDs and VCD/SVCD (when PBC off) discs

<Format> [PS,GetC]<CR>

<Reply> [PS,GetC,Error code,Title No.,Chapter No.]

(For the error codes, refer to the list of error codes on page 6.)

- <Details>
- In the play or pause mode, requests the current title number and chapter number.
  - In response to the request, the DN-V300 returns the error code corresponding to the sent command and the current title number and chapter number.
  - If a disc other than a DVD or VCD (only when PBC is off) is loaded, error code 10 is returned.
  - For VCDs, track numbers are handled as title numbers, entry numbers as chapter numbers, and the chapter number is fixed to "1".

Example: To check the number of the title and chapter of the DVD currently playing on the DN-V300

[PS,GetC]<CR> → A request for the current title and chapter number is sent from the controller.

[PS,GetC,0,3,1] ← The sent message's error code 0 (no error) and title number 3 and chapter number 1 are returned from the DN-V300.

### III. Asynchronous Responses: PR group

Detailed description of the status change notification commands

#### 16. End of title or track notification ( EOT ) ---- All discs

<Reply> [PR,EOT,Error code,Title or Track No.]

(For the error codes, refer to the list of error codes on page 6.)

- <Details> • If the currently playing title or track has ended due to the play or skip operations, etc., the change in status is notified.
- When the currently playing track has ended, the DN-V300 issues a message consisting of this command, the operating status error code, and the number of the title or track for which playback has ended.

Example: When playback of title 3 has ended

[PR,EOT,0,3] ← Operating status error code 0 (no error) and title number 3 which has finished playing are sent from the DN-V300.

#### 17. Start of a chapter notification ( SOC ) ---- DVDs only

<Reply> [PR,SOC,Error code,Title No.,Chapter No.]

(For the error codes, refer to the list of error codes on page 6.)

- <Details> • If playback of a new chapter has started due to the play or skip operations, etc., the change in status is notified.
- When playback of a chapter starts, the DN-V300 issues a message consisting of this command, the operating status error code, and the number of the title and chapter which has started playing.

Example: When playback of title 1, chapter 5 starts

[PR,SOC,0,1,5] ← Operating status error code 0 (no error) and the title number 1 and chapter number 5 which has started playing are sent from the DN-V300.

#### 18. End of a chapter notification ( EOC ) ---- DVDs only

<Reply> [PR,EOC,Error code,Title No.,Chapter No.]

(For the error codes, refer to the list of error codes on page 6.)

- <Details> • If the currently playing chapter has ended due to the play or skip operations, etc., the change in status is notified.
- When the currently playing chapter has ended, the DN-V300 issues a message consisting of this command, the operating status error code, and the number of the title and chapter for which playback has ended.

Example: When playback of title 1, chapter 3 has ended

[PR,EOC,0,1,3] ← Operating status error code 0 (no error) and title number 1 and chapter number 3 which has finished playing are sent from the DN-V300.

※If the chapter and title end simultaneously, the EOC command is not issued. Only the EOT command is issued.



## Description of PR Commands (continued)

19. Execution of a command and change status notification ( StatusChange ) ---- Valid when the power is on

<Reply> [PR,StatusChange,Error code,Status code]

(For the error codes, refer to the list of error codes on page 6.)

- <Details> • If the DN-V300's operating status has changed, for example by command execution, front panel operation or the ending of a disc, the change is status is notified.
- When a change of operating status has occurred, the DN-V300 issues a message consisting of this command, the operating status error code, and the status code.

List of status codes

Code	Name	Description
0	Error	Disc error or other problem has arisen
1	Opened	Tray is open
2	No Disc	Tray is closed by no disc is loaded
3	Stopped	Stop mode condition
4	Playing	Play mode condition
5	Pause	Still or pause mode condition

Example: If the DN-V300's operating status has changed from the stop to the play condition

[PR,StatusChange,0,4] ← Operating status error code 0 (no error) and play mode status code 4 are sent from the DN-V300.

## Appendix 1 PR Group Commands and Changes of Status

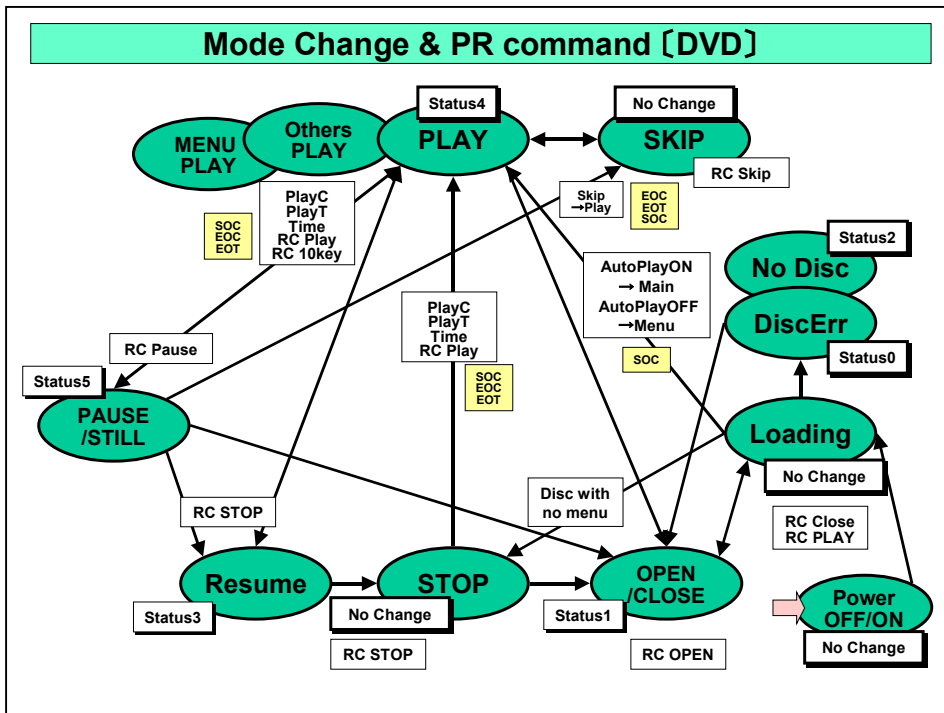
With the DN-V300, the changes of status (or mode) differ for different types of discs. The diagrams below show the relationship between the changes of status and the commands for the different types of discs.

【Viewing the diagrams】

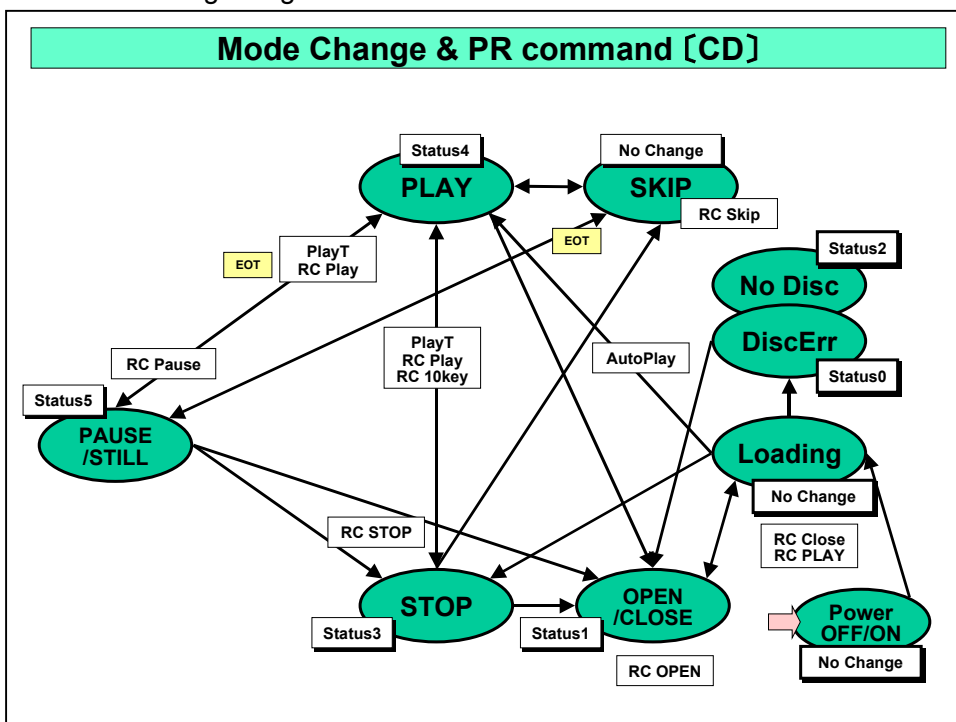
Example 1: When the DVD is in the stop mode and the [PC,PlayC] command is received setting the play mode, the status code changes to 4, and [PR,StatusChange] and [PR,SOC] are issued.

Example 2: When the mode switches from play to pause, the status code changes to 5, and [PR,StatusChange,5] is issued.

■ Status change diagram for when a DVD is loaded

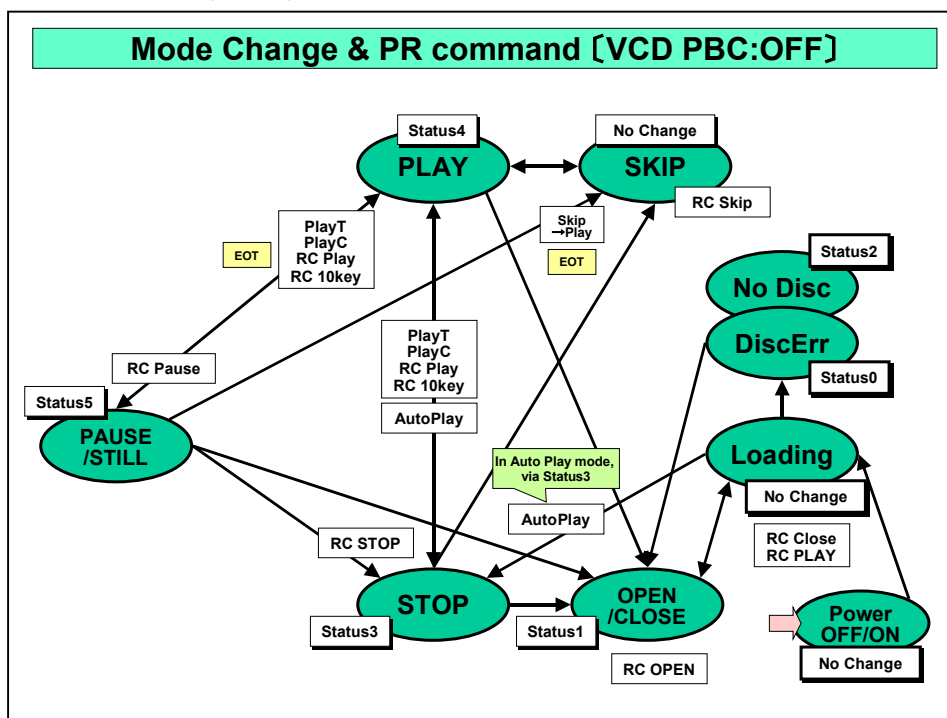


■ Status change diagram for when a CD is loaded



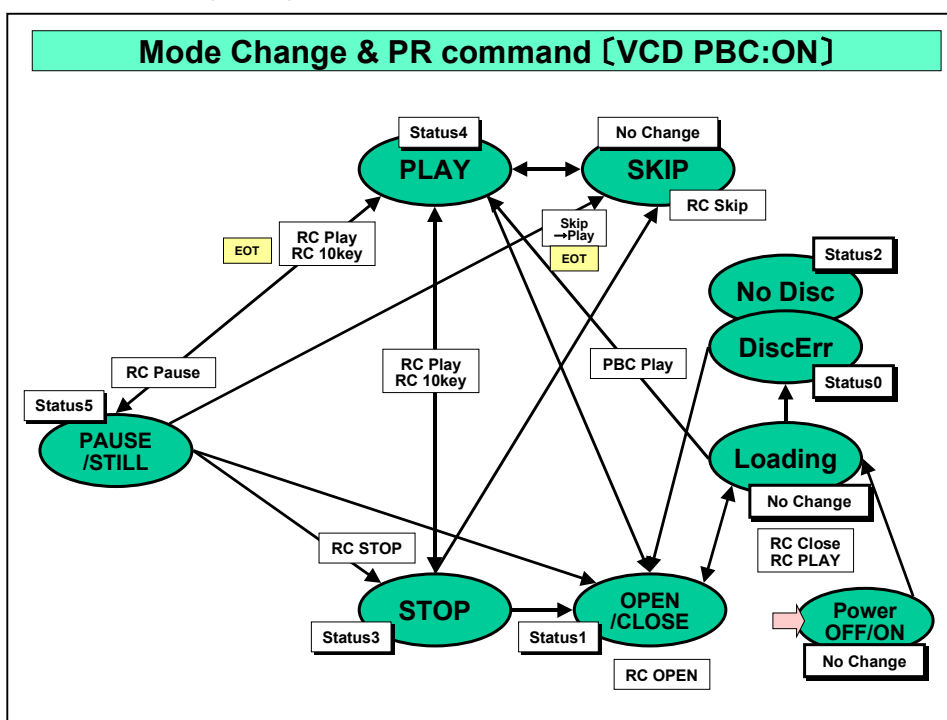
## Appendix 1 PR Group Commands and Changes of Status (continued)

- Status change diagram for when a VCD is loaded and PBC is off



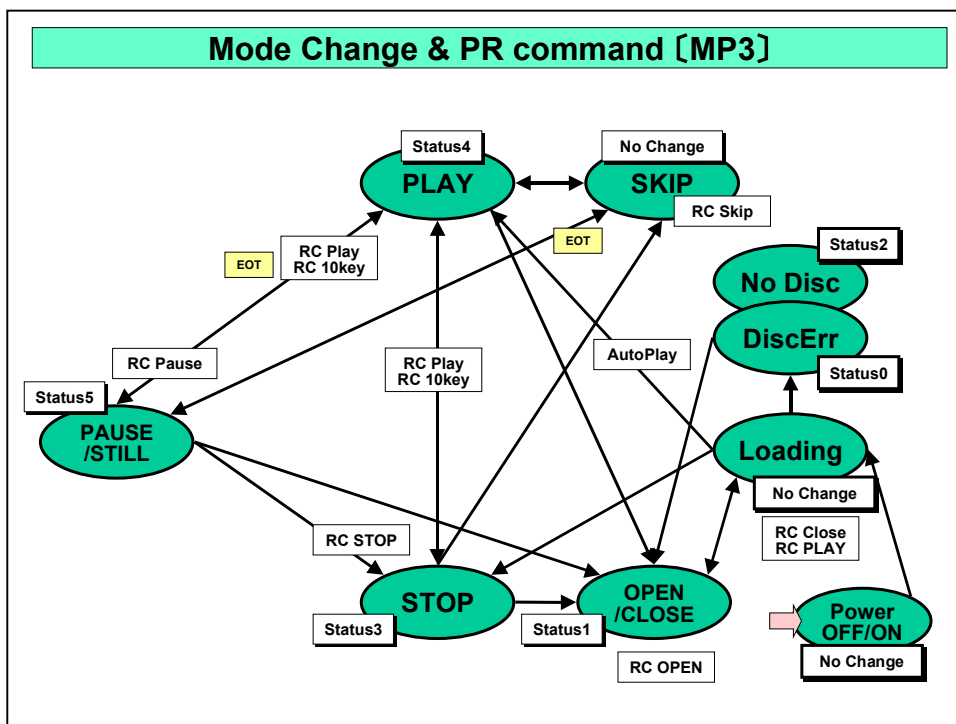
Example 1: When auto play is on, the mode changes to the stop mode, PBC is forcibly set to off and playback begins automatically.

- Status change diagram for when a VCD is loaded and PBC is on

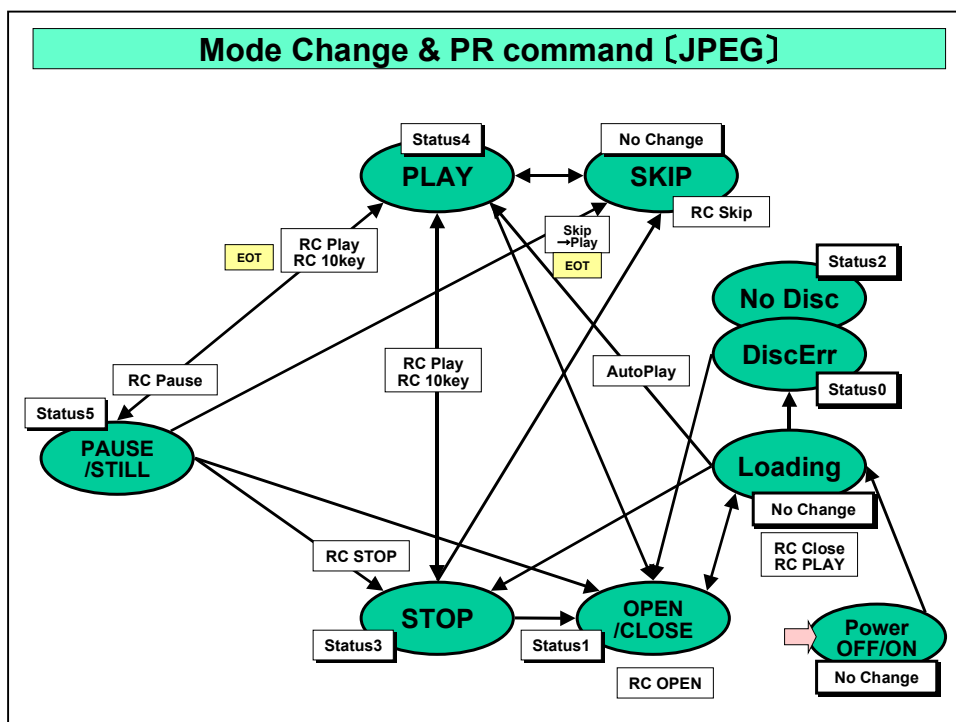


## Appendix 1 PR Group Commands and Changes of Status (continued)

- Status change diagram for when an MP3 disc is loaded



- Status change diagram for when a JPEG disc is loaded



## Appendix 2 Example of JPEG Pause Playback using the PC RC Commands

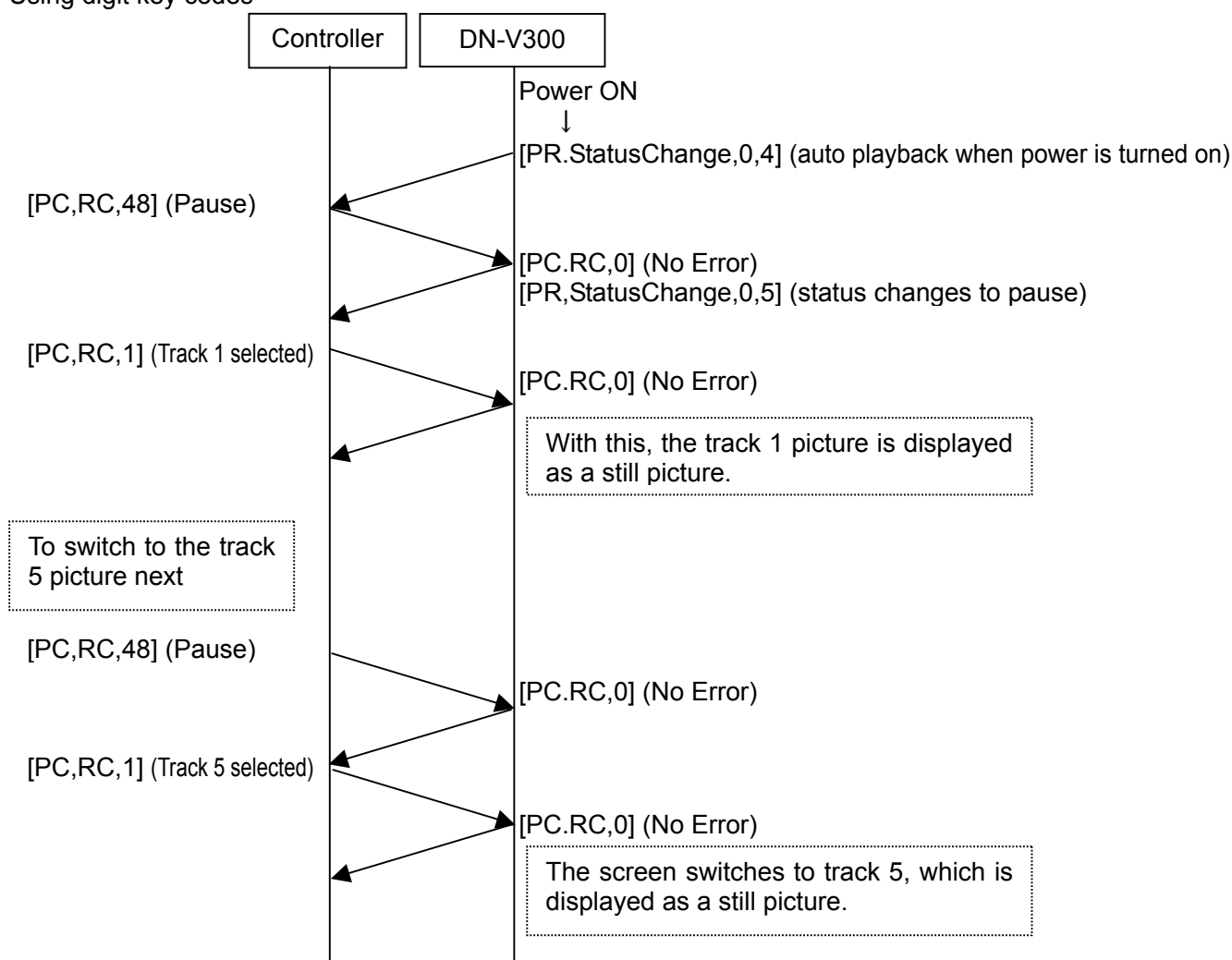
With the DN-V300, pause playback of still JPEG images using serial remote can be performed using a sequence of PC RC commands.

In concrete terms, there are two ways of doing this: by using the digit 0 to 9 and +10 key codes, and by using the SKIP key code. When using digits, the folder menu is displayed when switching. If you do not want the folder menu to be displayed, choose the method using the SKIP key code instead.

Below are two examples of control.

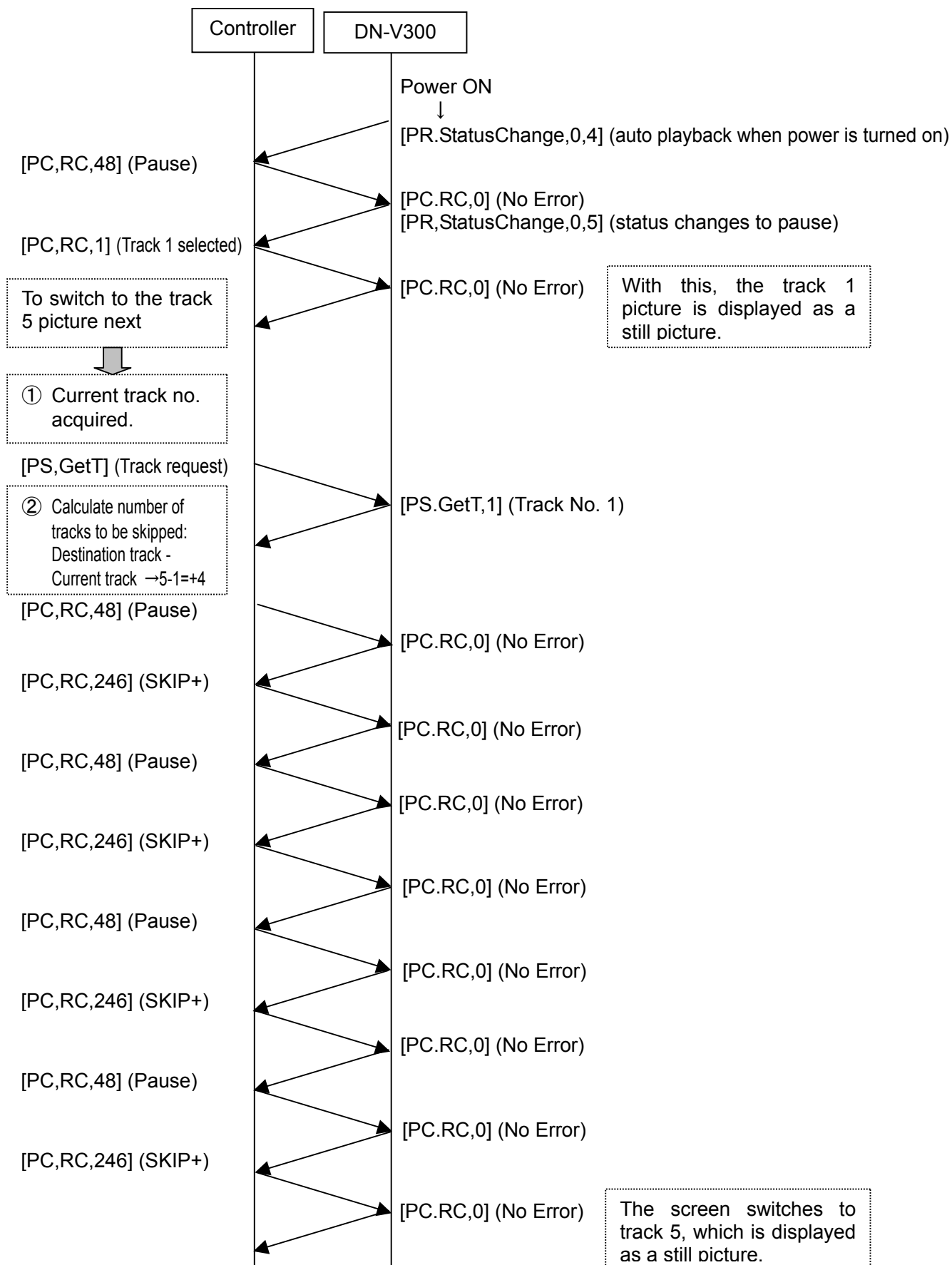
Concrete examples 1 and 2 both suppose that auto play setting is on and that playback is started when the power is turned on.

### 1. Using digit key codes



## Appendix 2 Example of JPEG Pause Playback using the PC RC Commands (continued)

### 2. Using the SKIP key code



## Appendix 3 Stopping and Resuming Status of DVD

With the DN-V300, when playing a DVD, when the stop operation is performed or the stop command is issued for the first time, the DN-V300 changes to the resume mode, and when the stop operation is performed or the stop command is issued for a second time, the DN-V300 changes to the stop mode.

The response to serial remote commands according to the device's status is defined as shown below. The validity of commands depends on the device's status, so be careful when controlling by serial remote.

PC control		V300 response	
group	command	DVD STOP	DVD RESUME
PC	RC	Same as IR remote controller	
	PlayT	<ul style="list-style-type: none"> <li>•OK→Title Play</li> <li>•NG→Error code2</li> </ul>	Error code1
	PlayC	<ul style="list-style-type: none"> <li>•OK →Title&amp;Chapter PLAY</li> <li>•ChapNG→Error code2</li> <li>•TitleNG→Error code2</li> </ul>	Error code1
	Time	<ul style="list-style-type: none"> <li>•OK→Time Play</li> <li>•NG→Error code2</li> </ul>	Error code1
	SetAST	Error code1	Error code1
	SetSPST	Error code1	Error code1
PS	GetStatus	Status :3	Status3
	GetDiscType	Code: 1	Code: 1
	GetAST	Error code1	Memorized No.
	GetSPST	Error code1	Memorized No.
	GetT	Error code1	Memorized No.
	GetC	Error code1	Memorized No.

The DN-V300 is designed to issue the "PR StatusChange" message when a change of status occurs, but the resume and stop modes are not distinguished, and both have the status code "3".

To switch to the stop mode by serial control when playing a DVD, issue the "STOP" command two times by PC RC command.

Example: To switch to the stop mode while playing a DVD

- [PC,RC,49]<CR> → First stop message sent from the controller.
  - [PC,RC,0] ← The sent message's error code 0 (no error) is returned from the DN-V300.
  - [PR,StatusChange,3] ← The DN-V300 switches to the resume mode and a message is issued.
  - [PC,RC,49]<CR> → Second stop message sent from the controller.
  - [PC,RC,0] ← The sent message's error code 0 (no error) is returned from the DN-V300.
- The DN-V300 switches to the stop mode. (No message is issued.)

## Appendix 4 Hyper Terminal Settings

When using a personal computer as the control device, serial communications are possible using Hyper Terminal included as a standard with Windows95™ and later.

When using Hyper Terminal (※), make the settings described below.

### 1. Connecting the personal computer and DN-V300

- When connecting the personal computer, use a male-female serial straight cable.
- To prevent malfunction, make sure the power of both the DN-V300 and personal computer are off when connecting the serial straight cable to the serial terminals.

### 2. Launching Hyper Terminal

- From the Windows “Start” menu, select “Programs” → “Accessories” → “Communications” → “Hyper Terminal”, then double-click the “Hypertrm.exe” icon displayed on the window that appears.

### 3. Connections settings

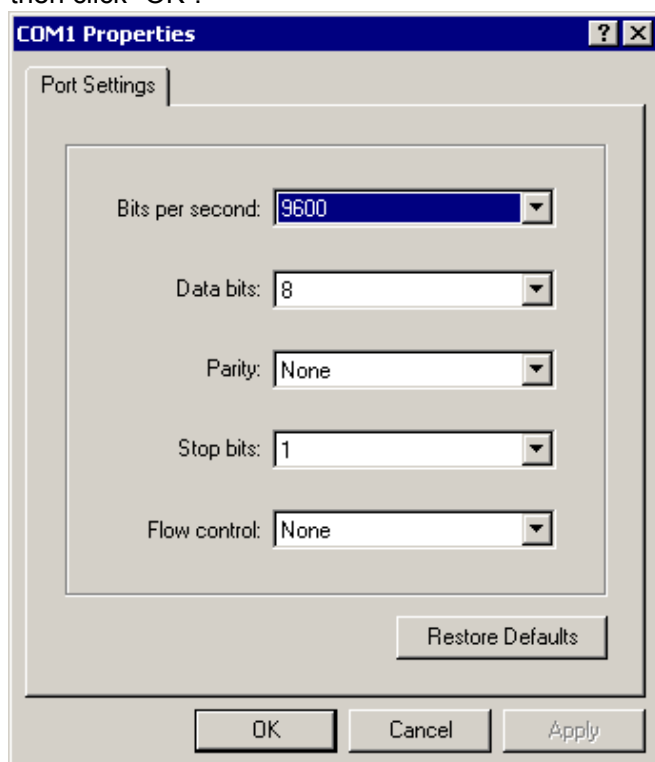
- A “Connection Description” dialog box appears. Input any name (the project name, etc.) in the “Name” text box, then select the desired icon and click “OK”.

### 4. Port selection

- At the dialog box that appears next, select “COM1” from the “Connect using” pull-down menu, then click “OK”.

### 5. Port settings

- Set the items on the “COM1 Properties” window that appears next as shown on the diagram below, then click “OK”.



Baud rate	9,600 bps
Data length	8 bits
Parity	None
Stop bits	1 bit
Flow control	None

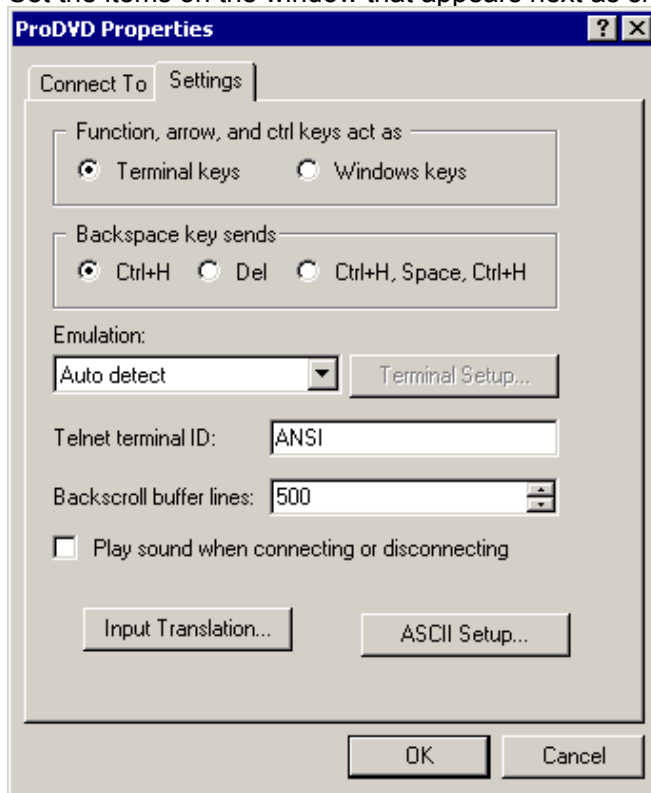
※Hyper Terminal is a registered trademark of Hilgraeve Inc.



## Appendix 4 Hyper Terminal Settings (continued)

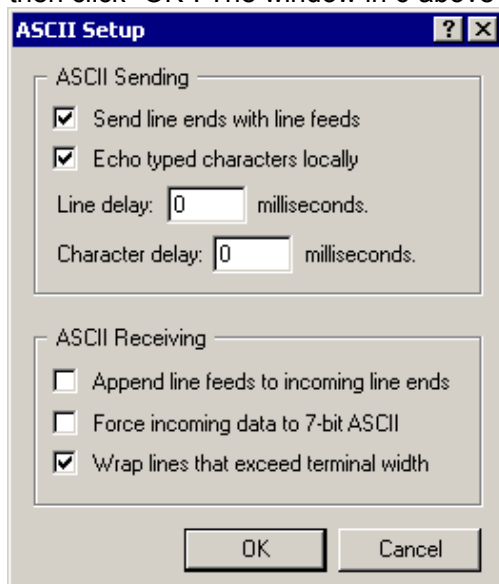
### 6. Property settings

- From the Hyper Terminal “File” menu, select “Properties”.
- Set the items on the window that appears next as shown on the diagram below.



### 7. ASCII settings

- Click “ASCII setup”, set the values on the window that appears as shown on the diagram below, then click “OK”. The window in 6 above reappears. Click “OK”.



This completes the Hyper Terminal settings.

### 8. Checking the connection

- When the DN-V300's tray opens, [PR,StatusChange,1] should appear on the Hyper Terminal window.
  - When a CD-DA disc is loaded and [PC,PlayT,1] is sent, Track 1 should be played.
- If the above operations work, this indicates that two-way communications are being performed normally.