



DN-500BD MKII

**Serial Command Protocol Guide**

English ( 3 – 21 )

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## Introduction

Thank you for purchasing the DN-500BD MKII. At Denon Professional, performance and reliability mean as much to us as they do to you. That's why we design our equipment with only one thing in mind—to make your performance the best it can be.

## Support

For the latest information about this product (documentation, technical specifications, system requirements, compatibility information, etc.) and product registration, visit [denonpro.com](http://denonpro.com).

For additional product support, visit [denonpro.com/support](http://denonpro.com/support).

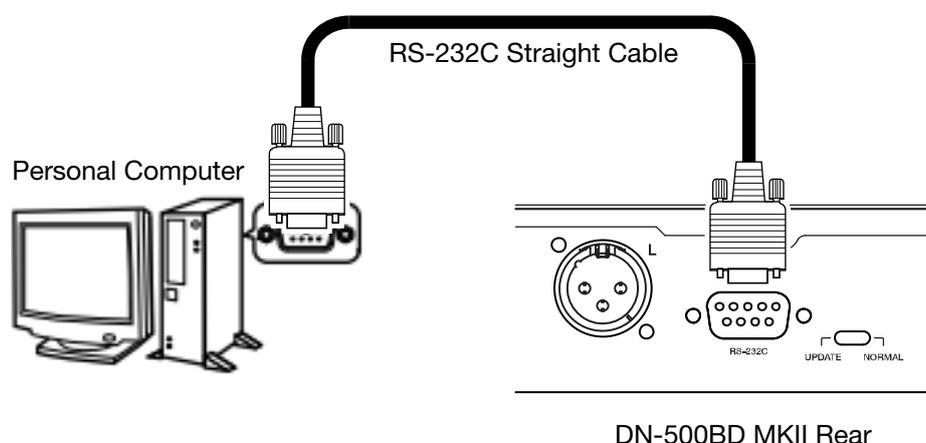
## General Overview

With RS-232C serial remote control, a “host” machine such as a PC can be used to operate your DN-500BD MKII. Throughout this document, the equipment used to control DN-500BD MKII will be called the **host**.

To learn more about the different types of serial communication and the code structure it requires, see the [Communication Protocol](#) section that starts on the next page. To view the complete list of serial command codes, see the [Control Command Codes](#) and [Status Request Command Codes/Status Information Codes](#) sections later in this manual.

## Connecting the Host to DN-500BD MKII

For serial remote control, you must first connect the host to your DN-500BD MKII. Use an RS-232C Straight Cable (9-Pin D-Sub Male) to connect the RS-232C input on the rear panel of your DN-500BD MKII to the corresponding input on the host. Make sure that the host is running appropriate software for serial communication.



# Communication Protocol

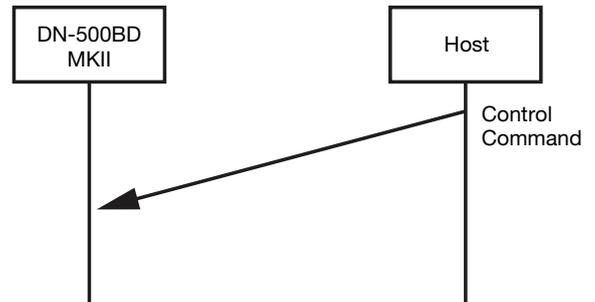
## Types of Serial Communication

Three types of serial communication can be transmitted between the host and DN-500BD MKII:

1. Control commands sent to DN-500BD MKII from the host

You can use control commands to make DN-500BD MKII perform a desired function (such as playing or skipping a track).

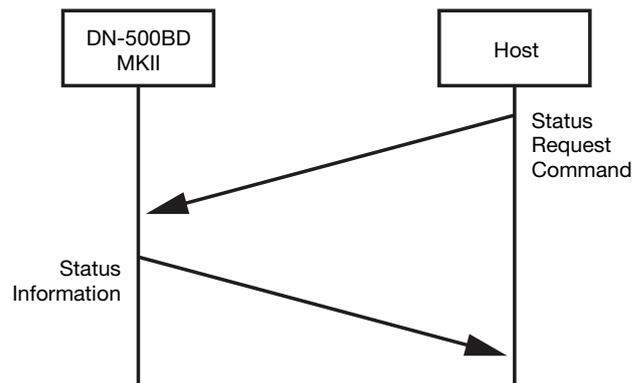
When DN-500BD MKII receives a control command from the host, DN-500BD MKII executes the command.



2. Status request commands sent to DN-500BD MKII from the host

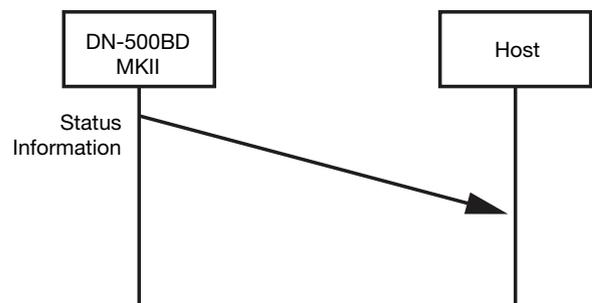
You can use a status request command to determine the current state of one of DN-500BD MKII's components (such as whether there is a disc in the CD slot, how many tracks are in the current tracklist, etc.).

When DN-500BD MKII receives a status request command from the host, DN-500BD MKII answers the host with the requested status information.



3. Status information automatically sent to the host when a change is made from DN-500BD MKII

When a change to DN-500BD MKII is made from the device itself, DN-500BD MKII automatically sends status information to the host.



## Structure of the Codes

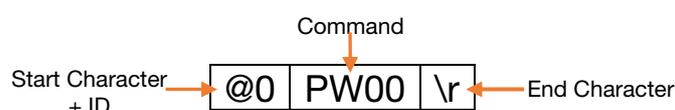
Serial communication between the host and DN-500BD MKII uses ASCII Code from 0x20 to 0x7F.

All control command codes, status request command codes, and status information codes require three components that form a “packet.” In order, the components are the **start character + ID**, the **command**, and the **end character** (0x0D):

1. Start Character + ID: @ (0x40) + 0 (0x30)
2. Command: some letters and/or numbers that stand for a controllable feature of DN-500BD MKII
3. End Character: \r (0x0D)

The required start character/ID and end character are the same in all codes, whereas the command portion varies with each code.

For example, the full control command code that the host would use to power on DN-500BD MKII would be **@0PW00\r**:



## Rules on Transmitting Command Codes

- When DN-500BD MKII receives a control command or status request command from the host, DN-500BD MKII should respond within 300 ms.
- When DN-500BD MKII successfully executes a command that it receives from the host, DN-500BD MKII sends an ACK signal (0x06) to the host (as well as the status information code in the case of a status request command).
- If DN-500BD MKII receives an unknown command from the host or if a received command fails for some other reason, DN-500BD MKII will send a NACK signal (0x15) to the host.
- When sending consecutive commands from the host, do not send the second command until DN-500BD MKII has answered the first with the ACK (0x06) or NACK (0x15) signal. If the second command is sent before the ACK (0x06) or NACK (0x15) signal is received, DN-500BD MKII will send the “Busy” status information code (**@0BDERBUSY**) to the host.
- If DN-500BD MKII does not receive a command that the host sent within 300 ms, the host will automatically send the same command up to two additional times. If DN-500BD MKII still does not receive the command after the second automatic attempt, the process will timeout, and the host will send the end character to DN-500BD MKII.
- Do not send a second status request command from the host until DN-500BD MKII has responded to the first.
- When sending a command to DN-500BD MKII from the host, make sure that no longer than 5 ms passes between entering each character in the command code.
- Wait at least one second after sending the Power On command before sending the next command.
- When status information is automatically sent to the host after a change to DN-500BD MKII is made from the device itself, the host will send an ACK (0x06) signal to DN-500BD MKII. If DN-500BD MKII does not receive the ACK signal within 300 ms, it will automatically send the status information to the host again. If DN-500BD MKII then fails to receive the ACK (0x06) signal again, the process will timeout.

## Control Command Codes

*Italic characters of command mean parameter. (Ex: Frame “@0frXX\r” -> Parameter: XX)*

**Note:** “Track” refers to “Chapter” during DVD or BD playback. “Group” refers to “Title” during DVD or BD playback and “Folder” refers to USB and other media playback.

Control Commands (Host → DN-500BD MKII)			
CATEGORY	CONTENTS	CODE	DESCRIPTION
<b>Power</b>	Power On	@0PW00	Powers on DN-500BD MKII
	Power Off	@0PW01	Powers off DN-500BD MKII
<b>Disc Drive</b>	Eject	@0PCDTRYOP	Opens the disc tray
	Close	@0PCDTRYCL	Closes the disc tray
<b>Track Playback</b>	Play	@02353	Plays the current track
	Pause	@02348	Pauses the current track
	Stop	@02354	Stops the current track
	Turn Mute On	@0mt00	Mutes audio for the current track
	Turn Mute Off	@0mt01	Unmutes audio for the current track
<b>Track Selection</b>	Restart/Previous Track	@02333	Restarts the current track or skips to the previous track in the tracklist
	Next Track	@02332	Skips to the next track in the tracklist
	Select Track Number	@0Trnnnn	Selects the track corresponding to the entered number. <i>nnnn: number</i> 0001 - 2000
<b>Group/Title Selection</b>	Restart/Previous Title	@0PCGPPV	Restarts the current title or skips to the previous title in the tracklist
	Next Title	@0PCGPNX	Skips to the next title in the tracklist
	Select Title number	@0PCGpnnnn	Selects the group/title corresponding to the entered number. <i>nnnn: number</i> 0001 - 2000
<b>Track Searching</b>	Rewind	@0PCSLSR	Rewinds the current track
	Fast Forward	@0PCGPPV	Fast forwards the current track
<b>Number Buttons</b>	Enter Number	@0PCTKEYX	Selects the track corresponding to the entered number. <i>X: number</i> 0 - 9
<b>IR Lock/Unlock</b>	IR Lock	@0PCIRLK00	Disables DN-500BD MKII’s front panel infrared sensor from receiving commands from the remote control
	IR Unlock	@0PCIRLK01	Enables DN-500BD MKII’s front panel infrared sensor to receive commands from the remote control
<b>Panel Lock/Unlock</b>	Lock Panel	@023KL	Locks DN-500BD MKII’s front panel buttons
	Unlock Panel	@023KU	Unlocks DN-500BD MKII’s front panel buttons

Control Commands (Host → DN-500BD MKII)			
CATEGORY	CONTENTS	CODE	DESCRIPTION
<b>Time Display</b>	Display Track Elapsed	@0PCTMDEL	Sets the Display screen to show how much time has passed for the selected track
	Display Track Remaining	@0PCTMDRM	Sets the Display screen to show how much time is remaining for the selected track
	Display Total Elapsed	@0PCTMDTL	Sets the Display screen to show how much time has passed for the current tracklist
	Display Total Remaining	@0PCTMDTR	Sets the Display screen to show how much time is remaining for the current tracklist
<b>Repeat</b>	Set A for A-B Repeat	@0PCRPAF	Sets A point for A-B loop
	Set B and Start Repeat for A-B Repeat	@0PCRPF	Sets B point, and starts A-B loop
	Exit A-B Repeat	@0PCEXP	Exits A-B repeat mode
<b>Program Mode</b>	On	@0PCPMP00	Turns program mode on
	Off	@0PCPMP01	Turns program mode off
<b>Random Mode</b>	Selects the playback mode	@0PCPMR	When a status command message is sent, the unit will reply with: @0PCPMRXY X: <i>Shuffle or Random</i> S = Shuffle R = Random  YY: <i>Mode</i> OF = Off SI = Sub Item IT = Item AL = All
<b>Hide OSD</b>	Hides the on-screen display	@0DVHOSD00	Prevents menu text and icons from being sent to the video output.
	Show the on-screen display	@0DVHOSD01	Sends menu text and icons to the video output.
<b>BD/DVD Disc Menus</b>	Setup Menu	@0PCSU	Shows the Setup menu on the BD/DVD disc
	Top Menu	@0DVTP	Shows the main Title menu on the BD/DVD disc
	Option Menu	@0DVOP	Shows the playback Option menu on the BD/DVD disc
	Pop Up Menu	@0DVPU	Shows the Pop Up menu on the BD/DVD disc
	Return	@0PCRTN	Return to the previous setup menu screen on the BD/DVD disc
<b>Audio Dialog</b>	Primary dialog	@0DVADLG+	Select the primary audio track on the BD/DVD disc.
	Secondary dialog	@0DVADLG-	Select the secondary audio track on the BD/DVD disc
<b>Subtitle</b>	Subtitles	@0DVSBTL1	Turns on the subtitle language on the BD/DVD disc
<b>Angle</b>	Adjusts the video angle	@0DVANGL+	Adjusts the video angle on a BD/DVD disc that supports this

Control Commands (Host → DN-500BD MKII)			
CATEGORY	CONTENTS	CODE	DESCRIPTION
<b>Cursor</b>	Cursor Left	@0PCCUSR1	Adjusts the highlighted area on the screen to the left
	Cursor Right	@0PCCUSR2	Adjusts the highlighted area on the screen to the right
	Cursor Up	@0PCCUSR3	Adjusts the highlighted area up on the screen
	Cursor Down	@0PCCUSR4	Adjusts the highlighted area down on the screen
<b>Enter</b>	Activates menu selection	@0PCENTR	Activates the selected menu option on the BD/DVD disc
<b>Disc Tray</b>	Open disc tray	@0PCDTRYOP	Opens the disc tray
	Close disc tray	@0PCDTRYCL	Closes the disc tray
<b>Video Resolution</b>	Auto	@0DVVR1	Changes the video resolution of HDMI output to Auto
	480/576i	@0DVVR2	Changes the video resolution of HDMI output to 480/576i
	480/576P	@0DVVR3	Changes the video resolution of HDMI output to 480/576P
	720P	@0DVVR4	Changes the video resolution of HDMI output to 720P
	1080i	@0DVVR5	Changes the video resolution of HDMI output to 1080i
	1080P	@0DVVR6	Changes the video resolution of HDMI output to 1080P
<b>Display/Info</b>	Bit rate/media Info	@0DVDSIF	Shows the bit rate/media information on the display screen.
<b>Function/Color</b>	Red Function	@0DVFCLR1	Carries out a function specific to a disc
	Green Function	@0DVFCLR2	Carries out a function specific to a disc
	Blue Function	@0DVFCLR3	Carries out a function specific to a disc
	Yellow Function	@0DVFCLR4	Carries out a function specific to a disc
<b>Mode/Option</b>	PIP	@0DVMO	Cycles through the Picture-In-Picture modes
<b>Home</b>	Home menu	@0PCHM	Shows the Home menu for the unit
<b>Numerical buttons</b>	Numbered buttons 0-9	@0PCTKEYX	X: <i>Number</i> Inputs the numerical buttons 0-9
<b>Slow/Search</b>	Search through the media	@0PCSLSFs	s: <i>Search Speed</i> f = fast s = slow
<b>DVD/CD Auto Play</b>	Auto Play On	@0PCAP00	The disc will start playing after it is inserted
	Auto Play Off	@0PCAP01	Manually start playback on an inserted disc
<b>Auto Resume</b>	Enables auto resume	@0PCAR00	Resumes playback from the point on a disc where it was last played (for up to 5 discs)
	Disable auto resume	@0PCAR01	Disables the auto resume feature
<b>BD/DVD Ratings</b>	Sets the highest rating that can be viewed	@0DVPCRTXXX YYYY	XXXX: <i>Password</i> YYY (Variable): <i>Rating</i> OFF, KIDSAFE, G, PG, PG13, R, NC-17, ADULT

Control Commands (Host → DN-500BD MKII)				
	CATEGORY	CONTENTS	CODE	DESCRIPTION
Menu Settings	Area Code Change Password	Selects your country	@0DVPCACXX XYYYYY	XXXX: Current password YYYY (Variable) = Country name
		Password	@0DVPCCPXX XYYYYY	XXXX: Current password YYYY: New password
	PIP Mark	PIP on	@0DVPIP00	The screen shows a mark to indicate there is secondary video you can view using the Picture-in-Picture feature (on discs that support this)
		PIP off	@0DVPIP01	Disables the PIP marks
	Brightness	Adjusts the video brightness	@0DVPABNXXX	XXX: Level -16 = -16 000 = 0 +16 = +16
	Contrast	Adjusts the video contrast	@0?DVPACT	XXX: Level -16 = -16 000 = 0 +16 = +16
	Hue	Adjusts the video hue	@0DVPAHUXX	XXX: Level -9 = -9 00 = 0 +9 = +9
	Saturation 3D Output	Adjusts the video saturation	@0DVPASRXX	XXX: Level -9 = -9 00 = 0 +9 = +9
		Auto	@0DV3DAT	Enables 3D output to a 3D TV/monitor
	Brightness	Off	@0DV3D01	Turns off 3D output
	TV Aspect Ratio	16:9 Wide	@0DVAR9W	Sets the output aspect ratio to 16:9 Wide
	Hue	16:9 Wide/Auto	@0DVAR9A	Sets the output aspect ratio to 16:9 Wide/Auto
	Saturation	4:3 Pan & Scan	@0DVAR3P	Sets the output aspect ratio to 4:3 Pan & Scan
	3D Output TV System	4:3 Letterbox	@0DVAR3L	Sets the output aspect ratio to 4:3 Letterbox
		NTSC	@0DVMNT	Sets the output encoding to NTSC
	TV Aspect Ratio 1080p 24 Hz Conversion	PAL	@0DVMPL	Sets the output encoding to PAL
		Multi-system	@0DVMMS	Sets the output encoding to Multi-system
		On	@0DV1K2400	Converts Blu-ray playback frame rate from 24 Hz to 60 Hz (for locations using the NTSC standard) or 50 Hz (for locations using the PAL standard)
		Off	@0DV1K2401	The unit will play the video at 24 Hz.

<b>Control Commands (Host → DN-500BD MKII)</b>				
	<b>CATEGORY</b>	<b>CONTENTS</b>	<b>CODE</b>	<b>DESCRIPTION</b>
<b>Menu Settings</b>	<b>DVD 24p Conversion</b>	On	@0DV24pC00	Converts DVD playback frame rate from 24 Hz to 60 Hz (for locations using the NTSC standard) or 50 Hz (for locations using the PAL standard)
		Off	@0DV24pC01	Turns off DVD 24p conversion
	<b>HDMI Color Space</b>	RGB Video Level	@0DVCSRv	Set to RGB Video Level when using with video displays
		RGB PC Level	@0DVCSRp	Set to RGB PC Level when using with computer displays
		YCbCr 4:4:4	@0DVCSY4	Set to YCbCr 4:4:4 when using high resolution encoding sources
		YCbCr 4:2:2	@0DVCSY2	Set to YCbCr 4:2:2 to approximate the original color space of video discs
	<b>HDMI Deep Color</b>	48 bits	@0DVDC48	Sets the bit depth to 48 bits
		36 bits	@0DVDC36	Sets the bit depth to 36 bits
		30 bits	@0DVDC30	Sets the bit depth to 30 bits
		Off (24 bits)	@0DVDCOF	Sets the bit depth to 24 bits
	<b>CC Attribute</b>	Auto	@0DVCCAT	The closed captioning feature uses the default font, size, colors, opacity, etc.
		Custom	@0DVCCCT	Manually select the preferred font attributes
	<b>Font Color</b>	White	@0DVFCWT	Sets the text color to white
		Black	@0DVFCBK	Sets the text color to black
		Red	@0DVFCRD	Sets the text color to red
		Green	@0DVFCGR	Sets the text color to green
		Blue	@0DVFCBL	Sets the text color to blue
		Yellow	@0DVFCYL	Sets the text color to yellow
		Magenta	@0DVFCMA	Sets the text color to magenta
		Cyan	@0DVFCY	Sets the text color to cyan
		Default	@0DVFCDF	Sets the text color to the default setting
	<b>Font Size</b>	Default	@0DVFSDF	Sets the text size to the default value
		Standard	@0VFSST	Sets the text size to the standard size
Small		@0VFSM	Sets the text size to the small size	
Large		@0VFSLG	Sets the text size to the large size	

<b>Control Commands (Host → DN-500BD MKII)</b>				
	<b>CATEGORY</b>	<b>CONTENTS</b>	<b>CODE</b>	<b>DESCRIPTION</b>
<b>Menu Settings</b>	<b>Font Style</b>	Monospace with serifs	@0DVFTMNS	Sets the font style to a fixed-width with serifs
		Monospace without serifs	@0DVFTMNN	Sets the font style to a fixed-width without serifs
		Proportiona with serifs	@0DVFTPTS	Sets the font style to a varied width with serifs
		Proportiona without serifs	@0DVFTPTN	Sets the font style to a varied width without serifs
		Casual	@0DVFTCAS	Sets the font style to a mixture of upper and lowercase with serifs
		Cursive	@0DVFTCUR	Sets the font style to cursive characters
		Small Capital	@0DVFTSCA	Sets the font style to uppercase letters but with the size of a lowercase letter.
		Default	@0DVFTDEF	Sets the font style to the default font style
	<b>Font Opacity</b>	Solid	@0DVFOSD	Sets the font opacity to be solid
		Translucent	@0DVFOTL	Sets the font opacity to be translucent
		Transparent	@0DVFOTP	Sets the font opacity to be transparent
	<b>Font Edge</b>	None	@0DVFENN	Sets the style of the edges around the text to none
		Raised	@0DVFERS	Sets the style of the edges around the text to be raised
		Depressed	@0DVFEDP	Sets the style of the edges around the text to be depressed
		Uniform	@0DVFUEF	Sets the style of the edges around the text to be uniform
		Left Drop	@0DVFELS	Sets the style of the edges around the text to have a left drop
		Right Drop	@0DVFERD	Sets the style of the edges around the text to have a right drop
		Default	@0DVFEDE	Sets the style of the edges around the text to the default setting
	<b>Font Edge Color</b>	White	@0DVFcWT	The color of the edges around the text characters is white
		Black	@0DVFcBK	The color of the edges around the text characters is black
		Red	@0DVFcRD	The color of the edges around the text characters is red
		Green	@0DVFcGR	The color of the edges around the text characters is green
	<b>BG Color</b>	White	@0DVBCWT	The background color is white
		Black	@0DVBCBK	The background color is black
		Red	@0DVBCRD	The background color is red
		Green	@0DVBCGR	The background color is green

<b>Control Commands (Host → DN-500BD MKII)</b>				
	<b>CATEGORY</b>	<b>CONTENTS</b>	<b>CODE</b>	<b>DESCRIPTION</b>
<b>Menu Settings</b>	<b>BG Opacity</b>	Solid	@0DVBOSD	The opacity of the background is solid
		Transparent	@0DVBOTP	The opacity of the background is transparent
	<b>Window Color</b>	White	@0DVWCWT	The color of the window around the text is white
		Black	@0DVWCBK	The color of the window around the text is black
		Red	@0DVWCRD	The color of the window around the text is red
		Green	@0DVWCGR	The color of the window around the text is green
		Solid	@0DVWOSD	The opacity of the window around the text is solid
	<b>Window Opacity</b>	Translucent	@0DVWOTL	The opacity of the window around the text is translucent
		Transparent	@0DVWOTP	The opacity of the window around the text is transparent
		On	@0DVSA00	The screen shows a mark to indicate that there is secondary audio you can hear (on discs that support this)
	<b>Secondary Audio Mark</b>	Off	@0DVSA01	The marks are disabled
		<b>HDMI Audio</b>	Stereo	@0DVHAST
	LPCM		@0DVHALP	Selects LPCM as the format of the audio sent from the HDMI output
	Bitstream		@0DVHABS	Selects Bitstream as the format of the audio sent from the HDMI output
	<b>Coaxial/Optical Output</b>	48k LPCM	@0DVDO48	Selects 48k LPCM as the format of the audio sent from the coaxial output
		96k LPCM	@0DVDO96	Selects 96k LPCM as the format of the audio sent from the coaxial output
		192k LPCM	@0DVDO19	Selects 192k LPCM as the format of the audio sent from the coaxial output
		Bitstream	@0DVDOBS	Selects Bitstream as the format of the audio sent from the coaxial output
	<b>Speaker Configuration Down Mix Mode</b>	Channel configuration of speaker/woofer	@0DVSCChXX	XX: <i>Speaker/Woofer Number</i> (Woofer number is fixed to 1) LR = LT/RT ST = Stereo 21 = 2.1Ch 31 = 3.1Ch 71 = 7.1Ch

Control Commands (Host → DN-500BD MKII)					
	CATEGORY	CONTENTS	CODE	DESCRIPTION	
Menu Settings	SC Speaker Setting	Adjust speaker type, level, and delay	@0DVSCStdsvv vvdddd	<i>d: Type</i> C = Center L = Left R = Right l = Ls r = Rs  <i>s: Size</i> 0 = Large, 1 = Small  <i>vvv = Level</i> -01 = -1dB, +10 = +10dB  <i>dddd: Delay</i> 0005 = 5msec	
	Crossover	Crossover frequency	@0DVCOXXX	<i>XXX: Frequency</i> 100 = 100 Hz fff = OFF	
	Dynamic Range Control	Auto		@0DVDRAT	The compression specified by the Blu-ray disc is used (for other discs, no compression will be applied)
		On		@0DVDR00	Compression is used to smooth out the high and low audio volume levels
		Off		@0DVDR01	No compression is used
	Output Volume	Output Level		@0DVOVXXX	Sets the audio Output Level.  <i>XXX: Level</i> inf = Infinity -90 = -90dB +10 = +10dB 000 = 0dB
				@0DVOVFX	Sets the audio output to a fixed level. The Maximum Volume setting will be used (see below).
	Maximum Volume	Volume		@0DVMVXXX	Sets the highest possible volume level for the audio outputs.  <i>XXX: Level</i> -10 = -10dB -06 = -6dB +06 = +6dB +10 = +10dB
Firmware Upgrade	Via USB		@0DVFUUS	Starts a firmware upgrade via USB	
	Via Disc		@0DVFUDS	Starts a firmware upgrade from a disc	
	Via Network		@0DVFUNT	Starts a firmware upgrade a network connection	

Control Commands (Host → DN-500BD MKII)				
	CATEGORY	CONTENTS	CODE	DESCRIPTION
Menu Settings	Remote Control Code	Code1	@0DVRCC1	If using other Denon Professional products that unintentionally respond to DN-500BD MKII's remote control, select a different remote control code to keep its communication separate.
		Code2	@0DVRCC2	
		Code3	@0DVRCC3	
	HDMI CEC	HDMI1	@0DVHDC1	The remote control will send commands to DN-500BD MKII as well as a TV connected to the HDMI output (your TV must support HDMI CEC)
		Off	@0DVHDCOF	The DN-500BD MKII's remote control will send commands to DN-500BD MKII only.
	Backup Settings	Backup Settings	@0DVBS	Backup the unit's menu settings
	Restore Settings	Restore Settings	@0DVRS	Restore the unit's menu settings
	Reset Factory Defaults	Reset to factory defaults	@0DVFD	Reset the unit back to factory default settings
	BD-Live Network Access	On (Permitted)	@0DVBDLNA00	Sets the level of access to BD-Live on the internet to access only certain content
		Limited (Partial Permitted)	@0DVBDLNALT	The access to BD-Live on the internet is blocked
		Off (Prohibited)	@0DVBDLNA01	Select to store downloaded BD-Live files DN-500BD MKII's internal memory
	BUDA Setting	On Board	@0DVBUDAIN	Select to store downloaded BD-Live files DN-500BD MKII's internal memory
		External	@0DVBUDAEX	Select to store downloaded BD-Live files to a USB drive connected to DN-500BD MKII's USB port
	IP Address	Auto (DHCP)	@0IpAUTO00000000	DN-500BD MKII will obtain the IP address information via Dynamic Host Configuration Protocol (DHCP)
		Manual	@0IpXXXXXXXXXXXX	Enter the IP address manually XXXXXXXXXXXX: IP address 192168000100 = 192.168.0.100
Subnet Mask	Manual	@0SMXXXXXXXXXXXX	Manually enter the subnet mask XXXXXXXXXXXX = Subnet mask	
Gateway	Gateway address	@0GWXXXXXXXXXXX	Sets the gateway IP address XXXXXXXXXXXX: Gateway IP address	
DNS Server	DNS address	@0DNXXXXXXXXXXXX	Sets the DNS IP XXXXXXXXXXXX: DNS IP	

Control Commands (Host → DN-500BD MKII)				
	CATEGORY	CONTENTS	CODE	DESCRIPTION
<b>Menu Settings</b>	<b>Proxy Setting</b>	Enable	@0PCPXXXXXX XX:PPPPP	DN-500BD MKII uses a proxy server with the information set in the Proxy Host and Proxy Port windows  XXXX: Proxy Host PPPPP: Proxy Port 00000 - 65535
		Off	@0PCPXOF	No proxy server is used
	<b>Network Interface</b>	Ethernet	@0PCNIET	DN-500BD MKII will access the internet from an Ethernet connection
	<b>Connection Test</b>	Connection status	-	Status request = @0?PCCT @0PCCT00 = Successful connection @0PCCT01 = Failed connection

## Status Request Command Codes/Status Information Codes

Status Request Commands (Host → DN-500BD MKII)		Status Information (DN-500BD MKII → Host)		DESCRIPTION
REQUEST	CODE	ANSWER	CODE	
<b>Power Status</b>	@0?PW	On	ACK	The power is on
		Off	No answer	The power is off
<b>Disc Status</b>	@0?CD	No Disc	@0CDNC	There is no disc in the disc tray
		Disc In	@0CDCI	There is a disc in the disc tray
		Unformat	@0CDUF	The disc is unformatted.
		Tray Open	@0CDTO	Disc tray is opening or open
		Tray Close	@0CDTC	Disc tray is closing or closed
		Tray Error	@0CDTE	Disc tray error
<b>Track Status</b>	@0?ST	Playing	@0STPL	The current track is playing
		Paused	@0STPP	The current track is paused
		Slow Play Forward	@0STDVSF	The track is slowly searching forward
		Slow Play Reverse	@0STDVSR	The track is slowly searching in reverse
		Fast Play Forward	@0STDVFF	The current track is playing fast
		Fast Play Reverse	@0STDVFR	The current track is playing fast in reverse
		Step Play	@0STDVSP	Slow Step playback
		Menu	@0STED	The Menu settings are displayed
		Setup	@0STDVSV	The Setup mode is displayed
		Track Menu	@0STDVTR	The Track menu (Root menu) is displayed
		Home	@0STDVHM	The Home menu is displayed
<b>Track Number</b>	@0?Tr	Number of the current track	@0Trnnnn	The current track's number within the tracklist. nnnn (number) = 0000 - 9999 nnnn = UNKN if the track number is undetectable
<b>Tracklist Size</b>	@0?Tt	Total number of tracks	@0Ttnnnn	The total number of tracks in the current tracklist. nnnn (number) = 0000 - 9999 nnnn = UNKN if the total number of tracks is undetectable
<b>Track Title</b>	@0?ti	Title of the current track	@0tixxx	The title of the current track. xxx = up to 64 characters of the title
<b>Track Artist</b>	@0?at	Artist on the current track	@0atxxx	The name of the artist on current track. xxx = up to 64 characters of the artist name

Status Request Commands (Host → DN-500BD MKII)		Status Information (DN-500BD MKII → Host)		DESCRIPTION
REQUEST	CODE	ANSWER	CODE	
<b>Album Title</b>	@0?al	Album for the current track	@0alxxx	The name of the album that the current track is on. xxx = up to 64 characters of the album name
<b>Track Time</b>	@0?tl	Time position of the current track	@0tIMMMSS	The time position of the current track. <i>MMM</i> (minutes) = 000 - 999 <i>SS</i> (seconds) = 00 - 59
<b>Group Number</b>	@0?PCGp	Title/Folder Number	@0?PCGpXXXX	<i>XXXX</i> : Group No. 0000 - 9999 <i>UNKN</i> : Unknown
<b>Total Group Number</b>	@0?PCTG	Title/Folder Number	@0?PCTGXXXX	<i>XXXX</i> : Group No. 0000 - 9999 <i>UNKN</i> : Unknown
<b>Elapsed Track Time</b>	@0?ET	Time elapsed in the track	@0EThhhmmss	The amount of time that has elapsed in the current track. <i>hhh</i> (hours) = 000 - 999 <i>mm</i> (minutes) = 00 - 59 <i>ss</i> (seconds) = 00 - 59
<b>Remaining Track Time</b>	@0?RM	Time remaining in the track	@0RMhhhmmss	The amount of time remaining before the current track ends. <i>hhh</i> (hours) = 000 - 999 <i>mm</i> (minutes) = 00 - 59 <i>ss</i> (seconds) = 00 - 59
<b>Media Type</b>	@0?PCTYP	Media Type	@0PCTYPXXXX	<i>XXXX</i> : Disc Type DVV = DVD_VIDEO DVA = DVD_AUDIO CDA = CDDA CDR = CD-ROM UKN = Unknown SAC = SACD DVR = DVD_VR BDM = BDMV BDA = BDAV AVH = AVCHD DLN = DLNA EXT = External Memory

Status Request Commands (Host → DN-500BD MKII)		Status Information (DN-500BD MKII → Host)		DESCRIPTION
REQUEST	CODE	ANSWER	CODE	
<b>Audio Format Code</b>	@0?PCAFMT	Audio Format	@0PCAFMTXXX	<i>XXX: Audio Format Code</i> DBD = Dolby Digital DTS = DTS MPG = MPEG LPC = LPCM PPC = PPCM UKN = Unknown DSD = DSD DD+ = DD+ DTH = DTS-HD DHM = DTS-HD MA DLH = Dolby True HD MP3 = MP3 AAC = AAC WMA = WMA
<b>Audio Channel Code</b>	@0?PCACH	Audio Channel	@0BDACHXXX	<i>XXX: Audio Channel</i> 1CH = 1ch 2CH = 2ch 21C = 2.1ch 3CH = 3ch 3CH = 3ch 31C = 3.1ch 4CH = 4ch 41C = 4.1ch 5CH = 5ch 51C = 5.1ch 6CH = 6ch 61C = 6.1ch 7CH = 7ch 71C = 7.1ch 8CH = 8ch L/R = L/R CD/VCD/MP3 RCH = CD/VCD LCH = CD/VCD UKN = Unknown
<b>Audio Dialog Code</b>	@0?PCDGX	Audio Dialog Code	@0PCDGXYYY	<i>X: Primary/Secondary</i> + = Primary - = Secondary <i>YYY: Audio Dialog Code</i> ISO 639-2 Code UKN = Unknown
<b>Subtitle Code</b>	@0?DVSTC	Subtitle Code	@0DVSTCXXX	<i>XXX: Subtitle Code</i> UKN = Unknown
<b>Model Information</b>	@0?VN	@0?VN	@0VNXXXXXXXXXXXXXXXXXXXX	Version No. & Model Name <i>XXXXXXXXXX: Version No</i> <i>XXXXXXXXXXXX: Model Name</i>

Status Request Commands (Host → DN-500BD MKII)		Status Information (DN-500BD MKII → Host)		DESCRIPTION
REQUEST	CODE	ANSWER	CODE	
<b>Current Track Time</b>	@0?tl	Current Track Time	@0tIMMMSSFF	<i>MMM</i> : Minute (000-999) <i>SS</i> : Second (00-59) <i>FF</i> : Frame (00-74)
<b>Current Track Frequency</b>	@0?fs	Current Track Fs	@0FsXX	<i>XXX</i> : Frequency <i>XXX</i> = kHz UKN = Unknown
<b>Artist of Current Track</b>	@0?at	Artist name	@0atxxx	<i>xxx</i> : Artist (64 bytes max)
<b>Title of Current Track</b>	@0?ti	Title	@0tixxx	<i>xxx</i> : Title (64 bytes max)
<b>Album of Current Track</b>	@0?al	Album name	@0alxxx	<i>xxx</i> : Album (64 bytes max)
<b>Error Message</b>	@0BDERBUSY	Device error	-	There is no buffer space for the command

## Supported Character List

**Note:** The supported character set is ISO/IEC 8859-1.

Supported characters are shown in the white and light gray cells in the table below. The characters in the dark gray cells are not supported.

	X0	X1	X2	X3	X4	X5	X6	X7	X8	X9	XA	XB	XC	XD	XE	XF
0X																
1X																
2X	SP	!	“	#	\$	%	&	‘	(	)	*	+	,	-	.	/
3X	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4X	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5X	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6X	`	a	B	c	D	e	f	g	h	I	j	k	l	m	n	o
7X	p	q	R	s	T	u	v	w	x	Y	z	{		}	~	DEL
8X																
9X																
AX	NBSP	ı	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	-	®	¯
BX	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
CX	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
DX	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
EX	à	á	â	ã	Ä	å	æ	ç	è	É	ê	ë	ì	í	î	ï
FX	ð	ñ	ò	ó	Ô	õ	ö	÷	ø	Ù	ú	û	ü	ý	þ	ÿ

## Folder and File Names

### Absolute Folder or File Name

The absolute path contains the root directory and all other subdirectories in which a file or folder is contained. The folder name or file name must be specified in the full path from the root directory. The root directory is expressed as 0x2F ('/') at the top, and the separator is 0x2F ('/').

**Example:** Folder name: /NewFolder, File name: /NewFolder/NewFile.wav

### Relative Folder or File Name

A relative path only contains a portion of the full path. The folder or file name is specified without adding a full folder path. The location is based on its relation to the directory to which it is linking.

**Example:** /NewFile.wav

The "/" portion of the relative path means "go back one directory."

## Appendix

### RS-232C Specifications

<b>Connector</b>	9-Pin D-sub Female	
<b>Mode</b>	Asynchronous / Full Duplex	
<b>Transfer Rate</b>	9600, 38400, or 115200 bps (via "Serial Bit Rate" in the "System Setting" menu). Set the Baud rate to 115,200 for all the serial commands to work properly.	
<b>Data Length</b>	8 bits	
<b>Parity</b>	None	
<b>Start Bit</b>	1 bit	
<b>Stop Bit</b>	1 bit	
<b>Flow Control</b>	None	
<b>Pin Arrangement</b>	<b>Pin Number</b>	<b>Signal Name</b>
	1	Ground
	6	NC
	2	TxD
	7	RTS*
	3	RxD
	8	NC
	4	NC
	9	NC
5	S. Ground	

\*5 V / 500 mA power supply can be used for RTS.

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