

DENON SYSTEM control protocol

Ver.1.0.0

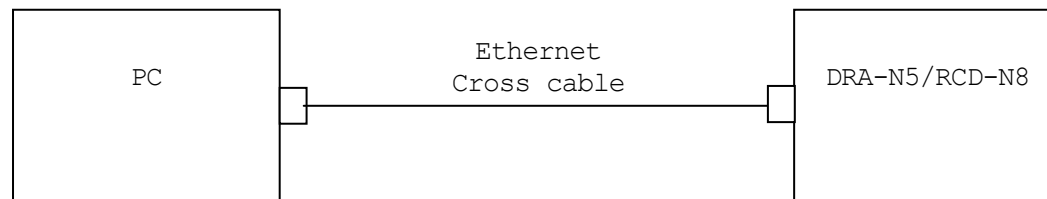
Application model : DRA-N5/RCD-N8
Application terminal: Ethernet
Rev 8.0.0

Connector specification

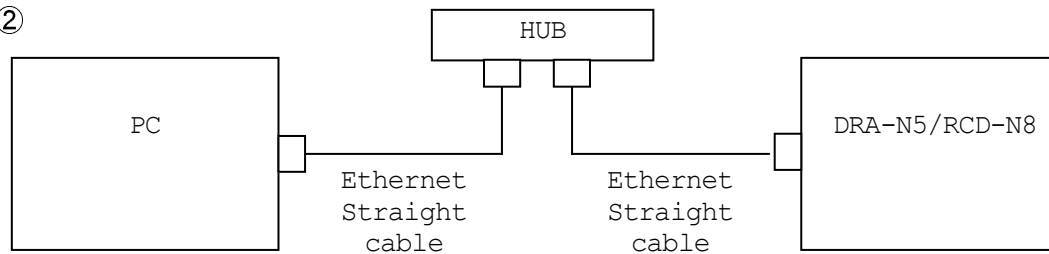
I. Ethernet

Connector type : RJ-45 (10BASE-T/100BASE-TX)

Example ①



Example ②



Communication format :

Communication system : A half duplex
Communication speed : 10Mbps/100Mbps
Communication port : TCP port 23 (telnet)
Communication data length : 135bytes (maximum)

Version	Date	Contents	Page
1.0.0	12.Oct.'12	Original	

NETWORK SETUP of DRA-N5/RCD-N8

>Procedure of Network Setup mode.

(1) Press **SETUP** button, then Menu appears on OLED-display.

(2) Select "Network > Settings" .

(3) Set parameters described below.

<DHCP> "On"---Use this setting when DHCP server is on the local network.
"Off"---Use this setting when DHCP server is not on the local network.

<IP Address> When <DHCP> sets "Off", please set IP address.
When <DHCP> sets "On", you can confirm the IP address that is set by server.

<Subnet Mask> When <DHCP> sets "Off", please set Subnet Mask.
When <DHCP> sets "On", you can confirm the Subnet Mask that is set by server.

<Gateway> Set the address of Gateway when Gateway is on the local network.
Do not set this parameter when Gateway is not on the local network.

<Primary DNS> Do not set this parameter.

<Second DNS> Do not set this parameter.

<Proxy> Set this parameter "Off".

<Network Option: Network Standby Mode>.

(1) Press **SETUP** button, then Menu appears on OLED-display.

(2) Select "Network > Network Standby".

(3) Set parameters described below.

"Network **On**"---Use this setting when using the DRA-N5/RCD-N8 Connected in a network.

"Network **Off**"--- Use this setting when not using the DRA-N5/RCD-N8 connected in a network.

This setting is reducing the power consumption in the standby mode.

Protocol specification

The following three data forms are defined.

- COMMAND** : The message sent to a system from a controller(Touch Panel etc.)
A command to a system is given from a controller.
- EVENT** : The message sent to a controller (Touch Panel etc.) from a system
The result is sent, when a system is operated directly and a state changes.
*The form of **EVENT** presupposes that it is the same as that of **COMMAND**.
Refer to the following table for the contents of **COMMAND and **EVENT**.
- RESPONSE** : The message sent to a controller (Touch Panel etc.) from a system
if the 'request command' (**COMMAND**+?**CR**(0x0D)) has come from a controller.
The **RESPONSE** should be sent within 200ms of receiving the **COMMAND**.
*The form of **RESPONSE** presupposes that it is the same as that of **EVENT**.

Basic specification: The command by ASCII CODE, parameter expression

*ASCII CODE which can be used is from 0x20 to 0x7F: the alphabet and the number of 0-9, and space (0x20), some signs,
AND carriage return (0x0D) --- It is used only as a pause sign.

Command structure: COMMAND + PARAMETER + CR (0x0D)

COMMAND: ASCII CODE of 2 characters

Ex. SI : Select Input source
 MU : Mute Setting
 MV : Master Volume setting
 PW : system Power setting

PARAMETER : ASCII CODE (up to 25 characters)

ex. TUNER: function name

*Special Parameter--- ? : for request command

The example of a command * <CR> is the meaning of 0x0D.

SITUNER<CR> : Select Input source TUNER

MUON<CR> : Mute Set to On

MVUP<CR> : Master Volume UP

PWON<CR> : system Power ON

PWSTANDBY<CR> : system Power STANDBY

SI?<CR> : Request command for now playing input source >> Return **RESPONSE** `SI***<CR>`

Others

- A) **COMMAND** is receivable also during transmission of **EVENT**.
- B) The **RESPONSE** should be sent as opposed to the request command by all the commands with which an **EVENT** exists , not need to the another request commands(ex. SI command).
- C) The **PARAMETER** (with **COMMAND** and **RESPONSE, EVENT**) of minimum level of MASTER VOLUME defines "00".
- D) If the MASTER VOLUME & CHANNEL VOLUME set with 1dB step, the **PARAMETER** (with **COMMAND** and **RESPONSE, EVENT**) defines three ASCII characters as bellows.

```
Ex.   MASTER VOLUME = 0dB : MV00<CR>
                        05dB : MV05<CR>
                        10dB : MV10<CR>
                        |   |
                        50dB : MV50<CR>
                        55dB : MV55<CR>
                        60dB : MV60<CR>
```

- E) 1 seconds later, please transmit the next **COMMAND** after transmitting a power on **COMMAND**(PWON).

COMMAND and PARAMETER list

COMMAND	PARAMETER	Function	example	
PW	ON	POWER ON/STANDBY change	PWON<CR>	
	STANDBY		PWSTANDBY<CR>	
	?	Return PW Status	PW?<CR>	
MV	UP	MASTER VOLUME UP/DOWN , direct change to **dB	MVUP<CR>	
	DOWN		MVDOWN<CR>	
	**		**:00 to 60 by ASCII	MV45<CR>
	?		Return MV Status	MV?<CR>
MU	ON	OUTPUT MUTE ON/OFF change	MUON<CR>	
	OFF		MUOFF<CR>	
	?	Return MU Status	MU?<CR>	
SI	IRADIO		SIIRADIO<CR>	
	SERVER		SISERVER<CR>	
	LASTFM	E2 Only	SILASTFM<CR>	
	SPOTIFY		SISPOTIFY<CR>	
	PANDORA	NA Only	SIPANDORA<CR>	
	SIRIUSXM	NA Only	SISIRIUSXM<CR>	
	IPOD		SIIPOD<CR>	
	USB		SIUSB<CR>	
	AUXA	Portable In(N8 Only)	SIAUXA<CR>	
	AUXB	N5:Analog In,N8:Analog In1	SIAUXB<CR>	
	AUXC	Analog In2(N8 Only)	SIAUXC<CR>	
	AUXD	Digital In	SIAUXD<CR>	
	PORTABLE_IN		SIPORTABLE_IN<CR>	
	CD	N8 Only	SICD<CR>	
	FM	N8 Only	SIFM<CR>	
	AM	N8(JP)Only	SIAM<CR>	
	DAB	N8 Only	SIDAB<CR>	
	?	Return SI Status	SI?<CR>	
	SLP	OFF	MAIN ZONE SLEEP TIMER setting	SLPOFF<CR>
***		***:001 to 120 by ASCII , 010=10min	SLP***<CR>	
?		Return SLP Status	SLP?<CR>	

※Portable In Connection check

COMMAND	PARAMETER	Function	example
PI	CONNECT?	Portable In Connection check	PICONNECT?<CR>

※timer

COMMAND	PARAMETER	Function	example								
TS	ONCE @**##-@\$\$%% [F][N] VV [O]	ONCE TIMER TIME SET	TSONCE A0730-AFFFF DV00 05 0<CR>								
		@:A or P or 2 (A:AM,P:PM,2:24hour by ASCII)	TSONCE P0630-PFFFF TU01 05 1<CR>								
		## :start time (=00~23hours,##=00~59minutes by ASCII)	TSONCE 21930-2FFFF IP00 05 1<CR>								
		\$\$%% :stop time (\$\$=00~23hours,%=00~59minutes by ASCII)									
		(not use:FFFF)									
		[F]:Function (2bytes by ASCII)									
		<table border="1" data-bbox="891 464 1379 603"> <tr> <td>FA</td> <td>Favorite</td> </tr> <tr> <td>CD</td> <td>CD (N8 Only)</td> </tr> <tr> <td>IP</td> <td>iPod</td> </tr> <tr> <td>US</td> <td>USB</td> </tr> </table>	FA	Favorite	CD	CD (N8 Only)	IP	iPod	US	USB	
		FA	Favorite								
		CD	CD (N8 Only)								
		IP	iPod								
US	USB										
[N]:preset No.(2bytes by ASCII, except TU="00")											
VV:VOLUME											
[O]:ONCE TIMER ON/OFF(0:OFF,1:ON)											
EVERY @**##-@\$\$%% [F] [N] VV [O]	EVERY TIMER TIME SET	TSEVERY P0630-PFFFF DV00 05 0<CR>									
	@:A or P or 2 (A:AM,P:PM,2:24hour by ASCII)	TSEVERY P0630-PFFFF TU01 05 1<CR>									
	## :start time (=00~23hours,##=00~59minutes by ASCII)	TSEVERY 21830-2FFFF IP00 05 1<CR>									
	\$\$%% :stop time (\$\$=00~23hours,%=00~59minutes by ASCII)										
	(not use:FFFF)										
	[F]:Function (2bytes by ASCII)										
	It is the same as that of ONCE TIMER TIME SET.										
	[N]:preset No.(2bytes by ASCII, except TU="00")										
	VV:VOLUME										
	[O]:EVERY TIMER ON/OFF(0:OFF,1:ON)										
?	TIMER Status	TS?<CR>									
TO	OFF OFF	TIMER ON/OFF OFF OFF :once=off, every=off	TOOFF OFF<CR>								
	OFF ON	OFF ON :once=off, every= on	TOOFF ON<CR>								
	ON OFF	ON OFF :once= on, every=off	TOON OFF<CR>								
	ON ON	ON ON :once= on, every= on	TOON ON<CR>								
	?	TIMER ON/OFF Status	TO?<CR>								
CLK		CLOCK	CLK<CR>								

COMMAND	PARAMETER	Function	example
PS	BAS UP	BASS UP/DOWN , direct change to **dB	PSBAS UP<CR>
	BAS DOWN	** :00 to 99 by ASCII , 50=0dB	PSBAS DOWN<CR>
	BAS **	SYSTEM can be operated from -10 to +10(40 to 60)	PSBAS 50<CR>
	BAS ?	Return PSBAS Status, 2Steps(40,42,44,...,50,...,56,58,60)	PSBAS ?<CR>
	TRE UP	TREBLE UP/DOWN , direct change to **dB	PSTRE UP<CR>
	TRE DOWN	** :00 to 99 by ASCII , 50=0dB	PSTRE DOWN<CR>
	TRE **	SYSTEM can be operated from -10 to +10(40 to 60)	PSTRE 50<CR>
	TRE ?	Return PSTRE Status, 2Steps(40,42,44,...,50,...,56,58,60)	PSTRE ?<CR>
	BAL LEFT	BALANCE LEFT/RIGHT , direct change to **	PSBAL LEFT<CR>
	BAL RIGHT	** :00 to 99 by ASCII , 50=CENTER	PSBAL RIGHT<CR>
	BAL **	SYSTEM can be operated from L6 to R6(44 to 56)	PSBAL 50<CR>
	BAL ?	Return PSBAL Status	PSBAL ?<CR>
	SDB ON	SDB ON/OFF	PSSDB ON<CR>
	SDB OFF		PSSDB OFF<CR>
	SDB ?	Return PSSDB Status	PSSDB ?<CR>
	SDI ON	SOURCE DIRECT ON/OFF	PSSDI ON<CR>
SDI OFF		PSSDI OFF<CR>	
SDI ?	Return PSS.DIRECT Status	PSSDI ?<CR>	
FV	**	FAVORITE direct change to No.**	FV 25<CR>
	?	Return FAVORITE List	FV ?<CR>
	MEM **	FAVORITE MEMORY to No.**	FVMEM 01<CR>
	DEL **	FAVORITE DELEAT to No.**	FVDEL 01<CR>

※FAVORITE Control

COMMAND	PARAMETER	Function	example
MN	CUP	"Cursor Up" Control	MNCUP<CR>
	CDN	"Cursor Down" Control	MNCDN<CR>
	CLT	"Cursor Left" Control	MNCLT<CR>
	CRT	"Cursor Right" Control	MNCRT<CR>
	ENT	"Enter" Control	MNENT<CR>
	FAV ON	"FAVORITE ON"	MNFAV ON<CR>
	FAV OFF	"FAVORITE OFF"	MNFAV OFF<CR>

※ANALOG TUNER Control (N8 Only)

COMMAND	PARAMETER	Function	example
TF	ANUP	TUNER Frequency UP/DOWN	TFANUP<CR>
	ANDOWN		TFANDOWN<CR>
	AN***** (6 digits)	--- ****.** kHz at AM band (>050000 is AM.) ****.** MHz at FM band (<050000 is FM.)	TFAN105000<CR> (1050.00kHz at AM)
	AN?	Return TF Status	TFAN?<CR>
TP	ANUP	TUNER PRESET CH UP/DOWN , direct change to No.**	TPANUP<CR>
	ANDOWN		TPANDOWN<CR>
	AN** (PRESET No.)		TPAN50<CR> (PRESET No."50")
	AN?		Return TP Status
	ANMEM**	TUNER PRESET MEMORY	TPANMEM05<CR>
TM	ANAM	TUNER BAND , MODE Select ---Band set to AM	TMANAM<CR>
	ANFM	---Band set to FM	TMANFM<CR>
	?	Return TM Status	TM?<CR>
	ANAUTO	---Tuning mode set to AUTO mode	TMANAUTO<CR>
	ANMANUAL	---Tuning mode set to MANUAL mode	TMANMANUAL<CR>

TF, TP, TM **COMMAND** : '*' parameters can NOT operate when INPUT source isn't TUNER.

※DAB TUNER Control (N8 Only)

COMMAND	PARAMETER	Function	example
TF	DAUP	STATION UP/DOWN	TFDAUP<CR>
	DADOWN		TFDADOWN<CR>
	DA***	TUNER STATION change ***:Frequency Data	TFDAA13<CR>
	DA?	Return TF Status	TFDA?<CR>
TM	DA	---Band set to DAB	TMDA<CR>

TF, TP **COMMAND** : '*' parameters can NOT operate when INPUT source isn't TUNER.

※Network/Rhapsody/Napster/USB/iPod Direct Extended Control (SS COMMAND)

COMMAND	PARAMETER	Function	example
NS	90	"Cursor Up" Control	NS90<CR>
	91	"Cursor Down" Control	NS91<CR>
	92	"Cursor Left" Control	NS92<CR>
	93	"Cursor Right" Control	NS93<CR>
	94	"Enter (Play/Pause)" Control	NS94<CR>
	97	"Mode" Control	NS97<CR>
	98	"Favorite" Control	NS98<CR> (Return) NS98OK<CR>
	9A	"Play" Control (iRadio/mServer/USB) "Play/Pause" Control (iPod Direct)	NS9A<CR>
	9B	"Pause" Control "Play/Pause" Control (iPod Direct)	NS9B<CR>
	9C	"Stop" Control	NS9C<CR>
	9D	"Skip Plus" Control	NS9D<CR>
	9E	"Skip Minus" Control	NS9E<CR>
	9F	Start Fast Forward	NS9F<CR>
	9G	Start Fast Forward	NS9G<CR>
	9H	"Repeat One" (USB/iPod DIRECT/mServer)	NS9H<CR>
	9I	"Repeat All" (USB/iPod DIRECT/mServer)	NS9I<CR>
	9J	"Repeat Off" (USB/iPod DIRECT/mServer)	NS9J<CR>
	9K	"Random On/Repeat ALL" (USB/mServer) "Shuffle Songs" Control (iPod Direct Only)	NS9K<CR>
	9M	"Random Off" (USB/mServer) "Shuffle Off" Control (iPod Direct Only)	NS9M<CR>
	9W	Toggle Switch "Browse Mode/Remote Mode"Control (iPod Direct Only)	NS9W<CR>
9X	Page Up	NS9X<CR>	
9Y	Page Down	NS9Y<CR>	
9Z	End Fast Forward / Reverse	NS9Z<CR>	
NSA		Request Onscreen Display Information List (Ascii)	NSA<CR> (Return NSE0-NSE8, Refer to Page 22)
NSE		Request Onscreen Display Information List (UTF-8 CODE Character)	NSE<CR> (Return NSE0-NSE8, Refer to Page 23)

CD Control (N8 Only)

COMMAND	PARAMETER	Function	example
BD	CURSOR UP	"Cursor Up" Control	BDCURSOR UP<CR>
	CURSOR DOWN	"Cursor Down" Control	BDCURSOR DOWN<CR>
	CURSOR LEFT	"Cursor Left" Control	BDCURSOR LEFT<CR>
	CURSOR RIGHT	"Cursor Right" Control	BDCURSOR RIGHT<CR>
	ENTER	"Enter" Control	BDENTER<CR>
	PLAY	"Play" Control	BDPLAY<CR>
	PAUSE	"Pause" Control	BDPAUSE<CR>
	PLAY/PAUSE	"Play/Pause" Control	BDPLAY PAUSE<CR>
	STOP	"Stop" Control	BDDSTOP<CR>
	SKIP +	"Skip Plus" Control	BDSKIP +<CR>
	SKIP -	"Skip Minus" Control	BDSKIP -<CR>
	MANUAL SEARCH +	"Manual Search Plus" Control (Search Forward)	BDMANUAL SEARCH +<CR>
	MANUAL SEARCH -	"Manual Search Minus" Control (Search Reverse)	BDMANUAL SEARCH -<CR>
	DS TRACK ****	Direct Select(Select track number) ****:0000 to 9999 by ASCII, 0000=number0, 3000= number 3000 ---SYSTEM can be operated from 0 to 9999	BDDS TRACK 0010<CR>
	OPEN/CLOSE	Disc tray open / closing	BDOPEN/CLOSE<CR>
	REPEAT	"Repeat" setting	BDREPEAT<CR>
	REPEAT ONE	"Repeat One"	BDREPEAT ONE<CR>
	REPEAT ALL	"Repeat All"	BDREPEAT ALL<CR>
	REPEAT OFF	"Repeat Off"	BDREPEAT OFF<CR>
	RANDOM	"RANDOM" Control	BDRANDOM<CR>
	RANDOM ON	"Random On"	BDRANDOM ON<CR>
	RANDOM OFF	"Random Off"	BDRANDOM OFF<CR>
	FOLDER MODE ON	"Folder Mode On"	BDFOLDER MODE ON<CR>
	FOLDER MODE OFF	"Folder Mode Off"	BDFOLDER MODE OFF<CR>
	FOLDER MODE	"Folder Mode On/Off" Toggle	BDFOLDER MODE<CR>
	FOLDER NAME?	"FOLDER NAME"Request	BDFOLDER NAME?<CR>
	FILE NAME?	"FILE NAME"Request	BDFILE NAME?<CR>
	ARTIST NAME?	"ARTIST NAME"Request	BDARTIST NAME?<CR>
	ALBUM NAME?	"ALBUM NAME"Request	BDALBUM NAME?<CR>
	SONG NAME?	"SONG NAME"Request	BDSONG NAME?<CR>
STATUS?	Acquires system status (such as the entire player and transfer unit).	BDSTATUS?<CR>	
FOLDER +	"Folder Plus" Control	BDFOLDER +<CR>	
FOLDER -	"Folder Minus" Control	BDFOLDER -<CR>	

EVENT (or RESPONSE) and PARAMETER list

EVENT	PARAMETER	Function	example	
PW	ON	POWER ON/STANDBY change	PWON<CR>	
	STANDBY		PWSTANDBY<CR>	
MV	**	MASTER VOLUME change , **:00 to 60 by ASCII	MV80<CR>	
MU	ON	OUTPUT MUTE ON/OFF change	MUON<CR>	
	OFF		MUOFF<CR>	
SI	IRADIO	E2 Only	SIIRADIO<CR>	
	SERVER		SISERVER<CR>	
	LASTFM		SILASTFM<CR>	
	SPOTIFY		SISPOTIFY<CR>	
	PANDORA		NA Only	SIPANDORA<CR>
	SIRIUSXM		NA Only	SISIRIUSXM<CR>
	IPOD			SIIPOD<CR>
	USB			SIUSB<CR>
	AUXA	Portable In(N8 Only)	SIAUXA<CR>	
	AUXB	N5:Analog In,N8:Analog In1	SIAUXB<CR>	
	AUXC	Analog In2(N8 Only)	SIAUXC<CR>	
	AUXD	Digital In	SIAUXD<CR>	
	PORTABLE_IN		SIPORTABLE_IN<CR>	
	CD	N8 Only	SICD<CR>	
	FM	N8 Only	SIFM<CR>	
	AM	N8(JP)Only	SIAM<CR>	
DAB	N8 Only	SIDAB<CR>		
SLP	OFF	MAIN ZONE SLEEP TIMER setting change	SLPOFF<CR>	
	***		SLP120<CR>	

※Portable In Connection check

COMMAND	PARAMETER	Function	example
PI	CONNECT?	Portable In Connection : OK	PICONECTOK<CR>
		Portable In Connection : NG	PICONECTNG<CR>

※timer

EVENT	PARAMETER	function	example								
TS	ONCE @**##-@\$\$%% [F][N] VV [O]	ONCE TIMER TIME SET	TSONCE A0730-AFFFF DV00 05 0<CR>								
		@:A or P or 2 (A:AM,P:PM,2:24hour by ASCII)	TSONCE P0630-PFFFF TU01 05 1<CR>								
		## :start time (=00~23hours,##=00~59minutes by ASCII)	TSONCE 21930-2FFFF IP00 05 1<CR>								
		\$\$% :stop time (\$\$=00~23hours,%=00~59minutes by ASCII)									
		(not use:FFFF)									
		[F]:Function (2bytes by ASCII)									
		<table border="1"> <tr> <td>FA</td> <td>Favorite</td> </tr> <tr> <td>CD</td> <td>CD (N8 Only)</td> </tr> <tr> <td>IP</td> <td>iPod</td> </tr> <tr> <td>US</td> <td>USB</td> </tr> </table>	FA	Favorite	CD	CD (N8 Only)	IP	iPod	US	USB	
		FA	Favorite								
		CD	CD (N8 Only)								
		IP	iPod								
US	USB										
[N]:preset No.(2bytes by ASCII, except TU="00")											
VV:VOLUME											
[O]:ONCE TIMER ON/OFF (0:OFF,1:ON)											
EVERY	@**##-@\$\$%% [F][N] VV [O]	EVERY TIMER TIME SET	TSEVERY P0630-PFFFF DV00 05 0<CR>								
		@:A or P or 2 (A:AM,P:PM,2:24hour by ASCII)	TSEVERY P0630-PFFFF TU01 05 1<CR>								
		## :start time (=00~23hours,##=00~59minutes by ASCII)	TSEVERY 21830-2FFFF IP00 05 1<CR>								
		\$\$% :stop time (\$\$=00~23hours,%=00~59minutes by ASCII)									
		(not use:FFFF)									
		[F]:Function (2bytes by ASCII)									
		It is the same as that of ONCE TIMER TIME SET.									
		[N]:preset No.(2bytes by ASCII, except TU="00")									
		VV:VOLUME									
		[O]:EVERY TIMER ON/OFF (0:OFF,1:ON)									
TO	OFF OFF	TIMER ON/OFF OFF OFF :once=off, every=off	TOOFF OFF<CR>								
	OFF ON	OFF ON :once=off, every= on	TOOFF ON<CR>								
	ON OFF	ON OFF :once= on, every=off	TOON OFF<CR>								
	ON ON	ON ON :once= on, every= on	TOON ON<CR>								
CLK		CLOCK	CLK<CR>								

EVENT	PARAMETER	Function	example
PS	BAS **	BASS change	PSBAS 50<CR>
	TRE **	TREBLE change	PSTRE 50<CR>
	BAL **	BALANCE change	PSBAL 50<CR>
	SDB ON	SDB ON/OFF	PSSDB ON<CR>
	SDB OFF		PSSDB OFF<CR>
	SDI ON	SOURCE DIRECT ON/OFF	PSSDI ON<CR>
	SDI OFF		PSSDI OFF<CR>
FV	**_XX_aaaa_???? ???	"FAVORITE NAME" Request *:FAVORITE No. XX:FUNCTION (0:Internet Radio,1:Music Server,2:TUNER) a:Character Length(MAX32byte) _:Null ?: Don't Care (The character after Null should be disregarded) **aaaa_?????:35byte Fixed	FV25 01 FM-87.50MHz<CR>

※FAVORITE Control

COMMAND	PARAMETER	Function	example
MN	CUP	"Cursor Up" Control	MNCUP<CR>
	CDN	"Cursor Down" Control	MNCDN<CR>
	CLT	"Cursor Left" Control	MNCLT<CR>
	CRT	"Cursor Right" Control	MNCRT<CR>
	ENT	"Enter" Control	MNENT<CR>
	FAV ON	"FAVORITE ON"	MNFAV ON<CR>
	FAV OFF	"FAVORITE OFF"	MNFAV OFF<CR>

※ANALOG TUNER Control (N8 Only)

EVENT	PARAMETER	function	example
TF	AN***** (6 digits)	TUNER Frequency change --- ****.** kHz at AM band ****.** MHz at FM band	TFAN105000<CR> (1050.00kHz at AM)
TP	AN** (PRESET No.)	TUNER PRESET change to No.** No Preset:OFF	TPANA1<CR> (PRESET No."A1") TPANOFF<CR>
TM		TUNER BAND , MODE change	
	ANAM	---Band set to AM	TMANAM<CR>
	ANFM	---Band set to FM	TMANFM<CR>
	ANAUTO	---Tuning mode set to AUTO mode	TMANAUTO<CR>
	ANMANUAL	---Tuning mode set to MANUAL mode	TMANMANUAL<CR>

※DAB TUNER Control (N8 Only)

EVENT	PARAMETER	function	example
TF	DA*** (3 digits)	TUNER STATION change --- *** Frequency Block at DAB band	TFDA13F<CR> ("13F"Frequency Block at DAB)
TM	DA	---Band set to DAB	TMDA<CR>

※Network/Rhapsody/Napster/USB/iPod Direct Extended Control

EVENT	PARAMETER	function	example
NSA		Onscreen Display Information(mServer/iRadio) is Answered By the NSA Command.	
	0	Display Line1 Information(Ascii)	NSA0*****_?????<CR>
	1	Display Line2 Information(Ascii)	NSA1※*****_?????<CR>
	2	Display Line3 Information(Ascii)	NSA2※*****_?????<CR>
	3	Display Line4 Information(Ascii)	NSA3※*****_?????<CR>
	4	Display Line5 Information(Ascii)	NSA4※*****_?????<CR>
	5	Display Line6 Information(Ascii)	NSA5※*****_?????<CR>
	6	Display Line7 Information(Ascii)	NSA6※*****_?????<CR>
	7	Display Line8 Information(Ascii)	NSA7*****_?????<CR>
	8	Display Line9 Information(Ascii)	NSA8*****_?????<CR> *: <u>Ascii</u> CODE Character (MAX95byte) _:Null ?: Don't Care (The character after Null should be disregarded) ※:Cursor&Playable Music Information Data(1Byte) Bit1:Playable Music =1 Bit2,3:Don't Care Bit4:CURSOR SELECT=1 Bit5,6,7,8:Don't Care *****_?????:96byte Fixed
		<example>	NSA0Now Playing USB_????<CR> NSA1※Come Away With Me_???<CR> NSA2※Norah Jones_?????????<CR> NSA3※_????????????????????<CR> NSA4※_????????????????????<CR> NSA5※00:11 100%_????????<CR> NSA6※_????????????????????<CR> NSA7_????????????????????<CR> NSA8_????????????????????<CR>
NSE		Onscreen Display Information(mServer/iRadio) is Answered By the NSE Command.	

	0	Display Line1 Information	NSE0***** ??????<CR>
	1	Display Line2 Information	NSE1※***** ??????<CR>
	2	Display Line3 Information	NSE2※***** ??????<CR>
	3	Display Line4 Information	NSE3※***** ??????<CR>
	4	Display Line5 Information	NSE4※***** ??????<CR>
	5	Display Line6 Information	NSE5※***** ??????<CR>
	6	Display Line7 Information	NSE6※***** ??????<CR>
	7	Display Line8 Information	NSE7***** ??????<CR>
	8	Display Line9 Information	NSE8***** _ ??????<CR> *:UTF-8 CODE Character (MAX95byte) _ :Null ?: Don't Care (The character after Null should be disregarded) ※:Cursor&Playable Music Information Data (1Byte) Bit1:Playable Music =1 Bit2,3:Don't Care Bit4:CURSOR SELECT=1 Bit5,6,7,8:Don't Care ***** _ ??????:96byte Fixed
		<example>	NSE0Now Playing USB_????<CR> NSE1※Come Away With Me_???<CR> NSE2※Norah Jones_????????<CR> NSE3※_????????????????????<CR> NSE4※_????????????????????<CR> NSE5※00:11 100%_????????<CR> NSE6※_????????????????????<CR> NSE7_????????????????????<CR> NSE8_????????????????????<CR>

※CD Control (N8 Only)

EVENT	PARAMETER	function	example
BD	STATUS *+-# /abcddeeee efhhmmssM	Acquires system status (such as the entire player and transfer unit). (*A) *:"SP" (20h), 0 to 3 by ASCII (Answer code) (*1) +:1 to ? by ASCII (Disc type code) (*2) -: (Audio format code) (*3) #: (Audio channel code) (2ch:32h(2)固定) :"0" /:"0" a:"0" b: (Status code) (*6) c: (Play mode code) (*5) ddd:"0" eeee: (Track information) f: (Time mode) (*4) hh: (Elapsed time hour) mm: (Elapsed time minutes) ss: (Elapsed time second) M: (Disc/USB mode) (*7)	BDSTATUS "SP"12345673100200081122 3300<CR>
	PLAY *	"Play" Control *:"SP", 0 to 3 by ASCII (Answer code) (*1)	BDPLAY "SP"<CR>
	PAUSE *	"Pause" Control (*B) *:"SP", 0 to 3 by ASCII (Answer code) (*1)	BDPAUSE 1<CR>
	STOP *	"Stop" Control *:"SP", 0 to 3 by ASCII (Answer code) (*1)	BDSTOP 2<CR>
	SKIP *-----	"Skip" Control (*C) *:"SP", 0 to 3 by ASCII (Answer code) (*1) +++:0 -----:0 to 9999 by ASCII (track number)	BDSKIP "SP"0000001<CR>
	MANUAL SEARCH *	Manual Search change (*D) *:"SP", 0 to 3 by ASCII (Answer code) (*1)	BDMANUAL SEARCH "SP"<CR>
	DS TRACK *++++-----	Direct Select *:"SP", 0 to 3 by ASCII (Answer code) (*1) +++:000 -----:0000 to 9999 by ASCII (track number)	BDDS TRACK "SP"0000020<CR>
	CURSOR *	"Cursor" Control	BDCURSOR "SP"<CR>

	*:"SP",0 to 3 by ASCII (Answer code) (*1)	
ENTER	"Enter" Control *:"SP",0 to 3 by ASCII (Answer code) (*1)	BDENTER "SP"<CR>
OPEN/CLOSE *	Disc tray open / closing *:"SP",0 to 3 by ASCII (Answer code) (*1)	BDOPEN/CLOSE "SP"<CR>
REPEAT *	"Repeat" Setting *:"SP",0 to 3 by ASCII (Answer code) (*1)	BDREPEAT "SP"<CR>
REPEAT ONE *	"Repeat One" Setting *:"SP",0 to 3 by ASCII (Answer code) (*1)	BDREPEAT ONE "SP"<CR>
REPEAT ALL *	"Repeat All" Setting *:"SP",0 to 3 by ASCII (Answer code) (*1)	BDREPEAT ALL "SP"<CR>
REPEAT OFF *	"Repeat Off" Setting *:"SP",0 to 3 by ASCII (Answer code) (*1)	BDREPEAT OFF "SP"<CR>
RANDOM *	"RANDOM" Setting *:"SP",0 to 3 by ASCII (Answer code) (*1)	BDRANDOM "SP"<CR>
RANDOM ON *	"RANDOM ON" Setting *:"SP",0 to 3 by ASCII (Answer code) (*1)	BDRANDOM ON "SP"<CR>
RANDOM OFF *	"RANDOM OFF" Setting *:"SP",0 to 3 by ASCII (Answer code) (*1)	BDRANDOM OFF "SP"<CR>
FOLDER MODE ON *	"FOLDER MODE ON" Setting *:"SP",0 to 3 by ASCII (Answer code) (*1)	BDFOLDER MODE ON "SP"<CR>
FOLDER MODE OFF *	"FOLDER MODE OFF" Setting *:"SP",0 to 3 by ASCII (Answer code) (*1)	BDFOLDER MODE OFF "SP"<CR>
FOLDER NAME *aaaaa_????	"FOLDER NAME" Request *:"SP",0 to 3 by ASCII (Answer code) (*1) a:Character Length (MAX32byte) _:Null ?: Don't Care (The character after Null should be disregarded) ***** ?????:33byte Fixed	BDFOLDER NAME "SP" Norah Jones_?????????????<CR>
FILE NAME *aaaaa_????	"FILE NAME" Request *:"SP",0 to 3 by ASCII (Answer code) (*1) a:Character Length (MAX32byte) _:Null ?: Don't Care (The character after Null should be disregarded) ***** ?????:33byte Fixed	BDFILE NAME "SP" Come Away With Me.mp3_?<CR>
ARTIST NAME *aaaaa_????	"ARTIST NAME" Request *:"SP",0 to 3 by ASCII (Answer code) (*1) a:Character Length (MAX32byte) :Null	BDARTIST NAME "SP" Norah Jones_?????????????<CR>

	?: Don't Care (The character after Null should be disregarded) ***** ?????:33byte Fixed	
ALBUM NAME *aaaaa_????	"ALBUM NAME" Request *:"SP",0 to 3 by ASCII (Answer code) (*1) a:Character Length (MAX32byte) _:Null ?: Don't Care (The character after Null should be disregarded) ***** ?????:33byte Fixed	BDALBUM NAME "SP" Come Away With Me_?<CR>
SONG NAME *aaaaa_????	"SONG NAME" Request *:"SP",0 to 3 by ASCII (Answer code) (*1) a:Character Length (MAX32byte) _:Null ?: Don't Care (The character after Null should be disregarded) ***** ?????:33byte Fixed	BDSONG NAME "SP" Come Away With Me_?<CR>
FOLDER +	"Folder Plus" Control *:"SP",0 to 3 by ASCII (Answer code) (*1) a:Character Length (MAX32byte) _:Null ?: Don't Care (The character after Null should be disregarded) ***** ?????:33byte Fixed	BDFOLDER NAME *aaaaa_????<CR>
FOLDER -	"Folder Minus" Control *:"SP",0 to 3 by ASCII (Answer code) (*1) a:Character Length (MAX32byte) _:Null ?: Don't Care (The character after Null should be disregarded) ***** ?????:33byte Fixed	BDFOLDER NAME *aaaaa_????<CR>

(*1) answer codes

No	Status	Code (ASCII)	Description
1	Command OK	20h (SP)	Accepts the command.
2	Invalid	30h (0)	Invalid command.
3	Order Track None	32h (2)	The track , the group ,the title or the chapter you specified does not exist.

(*2) Disc type code

Code	Disc Type
34h (4)	CD-DA
35h (5)	CD-ROM
36h (6)	UNKNOWN
40h (A)	USB
41h (B)	iPod

(*3) Audio format code

Code	Audio Format
34h (4)	LPCM
36h (6)	UNKNOWN
3Bh (;)	MP3
3Dh (=)	WMA

(*4) Time Mode code

Code	Time Mode
34h (4)	TOTAL REMAIN
39h (9)	TRACK ELAPSED
3Ah (:)	TRACK REMAIN
3Bh (;)	FOLDER NAME

(*5) Play mode code

Code	Play Mode
31h (1)	NORMAL
32h (2)	PROGRAM
33h (3)	RANDOM
34h (4)	REPEAT ONE
35h (5)	RANDOM + REPEAT ALL
36h (6)	REPEAT ALL
37h (7)	PROGRAM + REPEAT ALL
38h (8)	PROGRAM + RANDOM
39h (9)	PROGRAM + RANDOM + REPEAT ALL
3A (:)	REPEAT FOLDER
3B (;)	NORMAL + FOLDER

(*6) status codes

Here is a list of answer code types.

3Xh : Status of the entire system
4Xh : Status of each action mode

No.	Status	Code (ASCII)	Description
1	Stand-by	30h (0)	Stand-by
2	Disc Loading	31h (1)	Under disc loading.
3	Disc Loading Complete	32h (2)	Disc Loading complete.
4	Tray Opening	33h (3)	Disc tray open.
5	Tray Closing	34h (4)	Disc tray close.
6	No Disc	41h (A)	Disc not present
7	Stop	42h (B)	Stop
8	Play	43h (C)	Under disc playing.
9	Pause	44h (D)	Playback in process.
10	Scan Play	45h (E)	Scanning in process.
11	Scan Play(forword)	46h (F)	Scanning in process.
12	Scan Play(reverse)	47h (G)	Scanning in process.

(*7) DISC/USB MODE

No.	Status	Code (ASCII)	Description
1	Disc	30h (0)	
2	USB	31h (1)	

Special conditions

(*A) BDSSTATUS

- When the disc does not set to DVD mechanism and disc loading process does not finish, group number, title number, track number, and chapter number are set ('0').
- When the disc does not set to DVD mechanism and disc loading process does not finish, elapsed time information are set ('0').
- When power condition is "STANDBY", can accept "REQUEST SYSTEM STATUS", "POWER ON KEY", "REQUEST CPU VERSION", and "REQUEST ERROR STATUS". In case of another command, returns "COMMAND FORMAT ERROR ('1')" in the "ANSWER CODE"

Note : When you need these data, you should send this command.

(*C) BDSKIP

- This command is valid only , when mode status data is Play (E) or Pause (F).
- The unit can skip to a maximum track with Forward (+) and to a minimum track with Reverse (-).

(*D) BDMANUAL SEARCH

- This command is valid only when the mode status is Play (E) or Pause (F).