MARANTZ SYSTEM control protocol

Application model : NA-7004
Application terminal: RS-232C/ Ethernet

Connector specification

Ⅰ. RS-232C

Connector type: DB-9pin female type, slave straight connection (DCE type)
(1pin : GND , 2pin : TxD , 3pin : RxD , 5pin : Common(GND) , 4,6,7,8,9pin : NC)

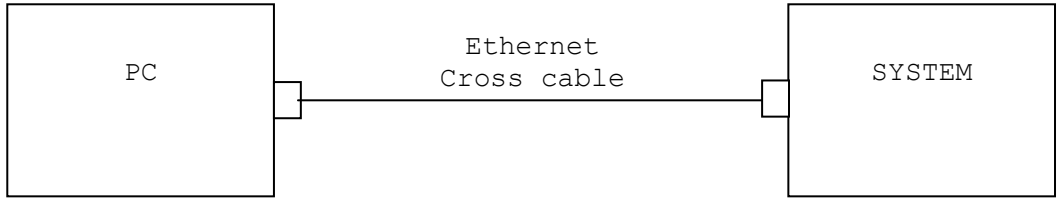
Communication format:

Synchronous system	: Tone step synchronization
Communication system	: A half duplex
Communication speed	: 9600bps
Character length	: 8 bits
Parity control	: None
Start bit	: 1 bit
Stop bit	: 1 bit
Communication procedure	: Non procedural
Communication data length	: 135 bytes (maximum)

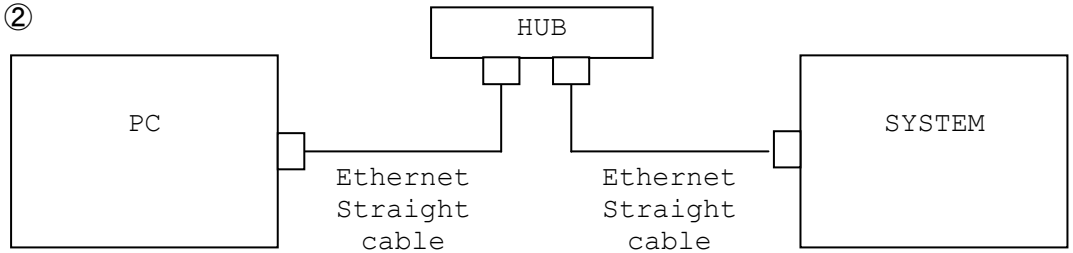
Ⅱ. Ethernet

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)

NETWORK SETUP of NA7004

>Procedure of Network Setup mode.

(1)Press **MENU** button, then Menu appears on OLED-display.
(2)Select “Network Setting > Network Connecting” .
(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 MENU button, then Menu appears on OLED-display.
(2)Select “Other > Network Standby”.
(3)Set parameters described below.

“**ON**”---Use this setting when using the NA7004 Connected in a network.
“**OFF**”--- Use this setting when not using the NA7004 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 came 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. DVD : function name

SUPER STADIUM : surround mode 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. SV command).

C) The ***PARAMETER*** (with ***COMMAND*** and ***RESPONSE***, ***EVENT***) of minimum level of MASTER VOLUME defines “99”.

D) If the MASTER VOLUME & CHANNEL VOLUME set with 0.5dB step, the ***PARAMETER*** (with ***COMMAND*** and ***RESPONSE***, ***EVENT***) defines three ASCII characters as bellows.

Ex. MASTER VOLUME = +1.0dB : MV81<CR>
+0.5dB : MV805<CR>
0dB : MV80<CR>
-0.5dB : MV795<CR>
-1.0dB : MV79<CR>
| |
-79.5dB : MV005<CR>
-80.0dB : MV00<CR>
-80.5dB : MV995<CR>
--- : MV99<CR>

* At the **.0dB step, only uses two ASCII characters as ***PARAMETER***, same as usual.

K) 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>
SI	TUNER		SITUNER<CR>
	AUXA	D.IN(USB)	SIAUXA<CR>
	AUXB	D.IN(COAXIAL)	SIAUXB<CR>
	AUXC	D.IN(OPTICAL)	SIAUXC<CR>
	M-XPORT		SIM-XPORT<CR>
	RHAPSODY	(North America model Only)	SIRHAPSODY<CR>
	NAPSTER		SINAPSTER<CR>
	PANDORA		SIPANDORA<CR>
	LASTFM		SILASTFM<CR>
	IRADIO		SIIRADIO<CR>
	SERVER		SISERVER<CR>
	USB	NA7004:iPod/USB	SIUSB<CR>
	?	Return SI Status	SI?<CR>

MV ***COMMAND*** : "*" parameter uses two or three ASCII characters. (see page7 J) section)

COMMAND	***PARAMETER***	Function	example
PS	MDA HI	M-DAX change	PSMDA HI<CR>
	MDA MID		PSMDA MID<CR>
	MDA LOW		PSMDA LOW<CR>
	MDA OFF		PSMDA OFF<CR>
	MDA ?	Return PSM-DAX Status	PSMDA ?<CR>
FV	**	FAVORITE direct change to No.**	FV 25<CR>
	?	Return FAVORITE List	FV ?<CR>

PS ***COMMAND*** : "*" parameter uses two ASCII characters. (see page7 J) section)

※ANALOG TUNER Control

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	TPAN?<CR>
	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

COMMAND	***PARAMETER***	Function	example
TF	DAUP	STATION UP/DOWN	TFDAUP<CR>
	DADOWN		TFDADOWN<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.

※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>

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

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>
	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>
	9H	“Repeat One” (USB/iPod DIRECT/mServer/Rhapsody/Napster)	NS9H<CR>
	9I	“Repeat All” (USB/iPod DIRECT/mServer/Rhapsody/Napster)	NS9I<CR>
	9J	“Repeat Off” (USB/iPod DIRECT/mServer/Rhapsody/Napster)	NS9J<CR>
	9K	“Random On/Repeat ALL” (USB/mServer/Rhapsody/Napster) “Shuffle Songs” Control (iPod Direct Only)	NS9K<CR>
	9M	“Random Off” (USB/mServer/Rhapsody/Napster) “Shuffle Off” Control (iPod Direct Only)	NS9M<CR>
	9W	Toggle Switch “Browse Mode/Remote Mode″Control (iPod Direct Only)	NS9W<CR>
NSE		Request Onscreen Display Information List (UTF-8 CODE Character)	NSE<CR> (Return NSE0-NSE8,Refer to Page 56)
NSD	*	“Direct Character Search”(except iPod Direct)	NSD0<CR> (*:0-9,A-Z)

EVENT(or RESPONSE) and PARAMETER list

EVENT	***PARAMETER***	Function	example
PW	ON	POWER ON/STANDBY change	PWON<CR>
	STANDBY		PWSTANDBY<CR>
SI	TUNER		SITUNER<CR>
	AUXA		SIAUXA<CR>
	AUXB		SIAUXB<CR>
	AUXC		SIAUXC<CR>
	M-XPORT		SIM-XPORT<CR>
	RHAPSODY	(North America model Only)	SIRHAPSODY<CR>
	NAPSTER		SINAPSTER<CR>
	PANDORA		SIPANDORA<CR>
	LASTFM		SILASTFM<CR>
	IRADIO		SIIRADIO<CR>
	SERVER		SISERVER<CR>
	USB		SIUSB<CR>

EVENT	***PARAMETER***	Function	example
PS	MDA HIGH	M-DAX change	PSMDA HIGH<CR>
	MDA MID		PSMDA MID<CR>
	MDA LOW		PSMDA LOW<CR>
	MDA OFF		PSMDA OFF<CR>
FV	** aaaa_???????	“FAVORITE NAME” Request *:FAVORITE No. a:Character Length(MAX32byte) _:Null ?: Don't Care (The character after Null should be disregarded) **aaaa_?????:35byte Fixed	FV25FM-87.50MHz<CR>

※ANALOG TUNER Control

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.**	TPANA1<CR> (PRESET No.”A1”)
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

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	
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>