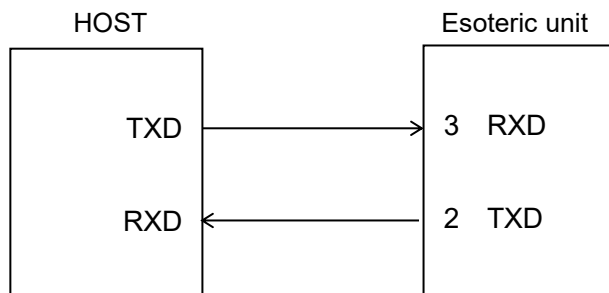Esoteric RS-232C Interface

For models:

K-01XD/K-03XD

1. Specification of RS-232C Connection

1-1. Hardware connection
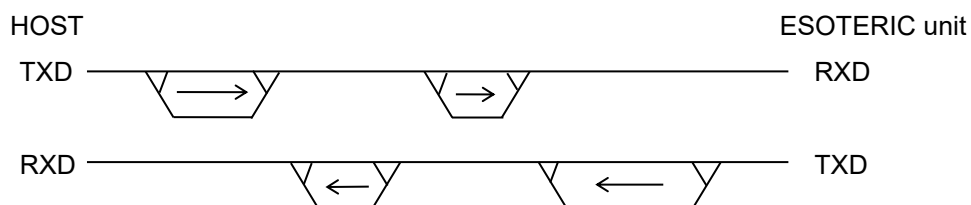

	HOST		Esoteric unit
	TXD	→	3 RXD
	RXD	←	2 TXD

Esoteric RS232 pin assignment:　　RXD : 3

　　　　　　　　　　　　　　　　　　TXD : 2

1-2. Specification of communication

Mode	:	Asynchronous Full-duplex
Transfer Rate	:	9600bps
Data length	:	8-bit
Split bit	:	1-bit
Parity	:	non-parity
Flow control	:	none

1-3. Data transfer

1-4. Command

There are two kinds of commands. The first is the "NORMAL" command which requests processing, and the second is the "REQUEST" command which requests status. ASCII code should be used for these commands. (case sensitive)

A start character '@' and an end character CR(0x0D) should be added to both the send command and return status as shown below.

Start Character:	@ (0x40)
<CR>:	CR (0x0D)
<SP>:	Space character (0x20)
Command Sample:	@?INPUT<CR> (Request Input Status)
Feedback Sample :	@INPUT<SP>DISC<CR> (Input = Disc)

The following control codes are used for ACK and NAK.

<ACK> (Receive success) :   0x06
<NAK> (Receive failed)   :   0x15

1-4-1. Normal Command

This is a command that requests processing.

If the ESOTERIC unit receives the command, it returns either ACK (received OK) or NAK (failed to receive).

The unit will return NAK, if it receives non-specified commands or <CR> without '@'.

example: When sending command PLAY to the ESOTERIC unit.

Sending command from the host

"@KEY<SP>01<CR>"

After processing the command, the ESOTERIC unit will return

0x06   (ACK : command received successfully)

or

0x15   (NAK : failed to receive the command)

1-4-2. Request Command

This is a command that requests status of the ESOTERIC unit.

It will return NAK, if it receives non-specified commands or <CR> without '@'.

Example: requesting media status to ESOTERIC unit.
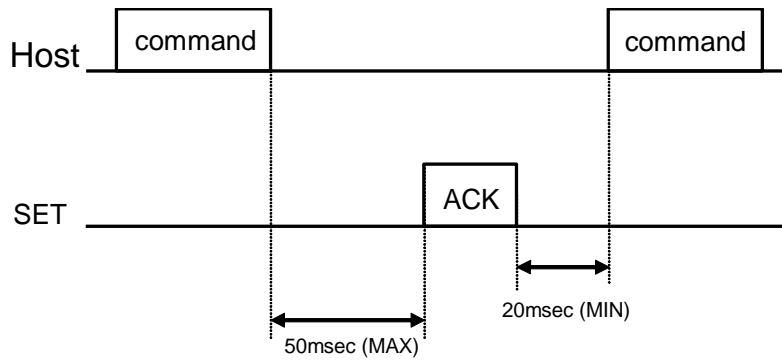
Commands from the host

"@?MEDIA<CR>"

Return status from the ESOTERIC unit, after received request command

"@MEDIA<SP>CD<SP>15<SP>64<SP>08<CR>

It means the current media is "CD disc, total 15tracks, total time 64min 08sec".

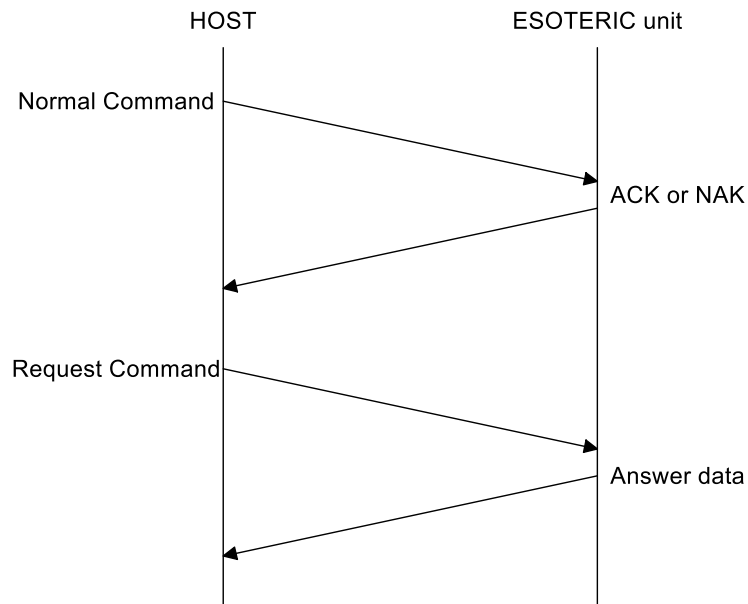### 1-4-2-1. Operation suggestions

Delay more than 20ms when sending next command after receiving ACK from ESOTERIC unit.

Handshake timing

1-4-3. Handshake Flowchart

Handshake operation (Normal, Request Command)

1-5. Command List

1-5-1. Normal commands

No.	Item		Command	for
1	POWER	ON	@POWER<SP>ON<CR>	Common
2	POWER	OFF	@POWER<SP>OFF<CR>	Common
3	KEY	DIMMER	@KEY<SP>5A<CR>	Common
4	KEY	TRAY	@KEY<SP>00<CR>	CD Player
5	KEY	PLAY	@KEY<SP>01<CR>	CD Player
6	KEY	PAUSE	@KEY<SP>02<CR>	CD Player
7	KEY	STOP	@KEY<SP>03<CR>	CD Player
8	KEY	I<<	@KEY<SP>0B<CR>	CD Player
9	KEY	>>I	@KEY<SP>0C<CR>	CD Player
10	KEY	<<	@KEY<SP>40<CR>	CD Player
11	KEY	>>	@KEY<SP>41<CR>	CD Player
12	KEY	0	@KEY<SP>04<CR>	CD Player
13	KEY	1	@KEY<SP>05<CR>	CD Player
14	KEY	2	@KEY<SP>06<CR>	CD Player
15	KEY	3	@KEY<SP>07<CR>	CD Player
16	KEY	4	@KEY<SP>0D<CR>	CD Player
17	KEY	5	@KEY<SP>0E<CR>	CD Player
18	KEY	6	@KEY<SP>0F<CR>	CD Player
19	KEY	7	@KEY<SP>15<CR>	CD Player
20	KEY	8	@KEY<SP>16<CR>	CD Player
21	KEY	9	@KEY<SP>17<CR>	CD Player
22	KEY	+10	@KEY<SP>4F<CR>	CD Player
23	KEY	CLEAR	@KEY<SP>4B<CR>	CD Player
24	KEY	PLAY MODE	@KEY<SP>1E<CR>	CD Player
25	KEY	REPEAT	@KEY<SP>47<CR>	CD Player
26	KEY	PLAY AREA	@KEY<SP>49<CR>	CD Player
27	KEY	MODE	@KEY<SP>1D<CR>	CD Player
28	KEY	DISPLAY	@KEY<SP>42<CR>	CD Player
29	KEY	INPUT-	@KEY<SP>43<CR>	AMP
30	KEY	INPUT+	@KEY<SP>44<CR>	AMP
31	KEY	VOLUME-	@KEY<SP>12<CR>	AMP
32	KEY	VOLUME+	@KEY<SP>13<CR>	AMP
33	KEY	MUTE	@KEY<SP>1C<CR>	AMP
33	KEY	SETUP	@KEY<SP>14<CR>	AMP
34	VOLUME	0~255	@VOLUME<SP>125<CR>	AMP

No.	Item		Command	for
35	KEY	INPUT+	@KEY<SP>20<CR>	Network/DAC
36	KEY	MENU	@KEY<SP>21<CR>	Network/DAC
37	KEY	<	@KEY<SP>22<CR>	Network/DAC
38	KEY	>	@KEY<SP>23<CR>	Network/DAC
39	KEY	I<<	@KEY<SP>24<CR>	Network/DAC
40	KEY	>>I	@KEY<SP>25<CR>	Network/DAC
41	KEY	PLAY	@KEY<SP>26<CR>	Network/DAC
42	KEY	PAUSE	@KEY<SP>27<CR>	Network/DAC
43	KEY	STOP	@KEY<SP>28<CR>	Network/DAC

1-5-2. Request commands

No.	Item	Command	for	Answer
1	Input	@?INPUT<CR>	common	@INPUT<SP>DISC<CR> There are "ESLINK","XLR","RCA" and so on.
2	Analog OUTPUT	@?AOUT<CR>	common	@AOUT<SP>SPEAKER<CR> There are "HP", "XLR2", "ESLA", "RCA" and so on.
3	Digital OUTPUT	@?DOUT<CR>	common	@DOUT<SP>XLR<CR> There are "ESLINK", "XLR", "RCA", "OPT" and so on.
4	Media	@?MEDIA<CR>	CD Player	@MEDIA<SP>SACD<SP>12<SP>34<SP>56<CR> It means "Media=SACD", "total track=12", "total time=34m56s"
5	Play Status	@?PSTS<CR>	CD Player Network Player	@PSTS<SP>PLAY<SP>3<SP>1<SP>23<SP>TE<CR> It means "Playing 3tr 1m 23s Track elapsed time". TE: Track Elapsed TR: Track Remain DE: Disc Elapsed DR: Disc Remain
6	Play Mode	@?PMODE<CR>	CD Player Network Player	@PMODE<SP>CONTINUE<CR> There are "CONTINUE", "PGM" and "SHUFFLE".
7	Repeat	@?REPEAT<CR>	CD Player Network Player	@REPEAT<SP>ALL<CR> There are "OFF", "ALL", "1".
8	Upconv	@?UPCONV<CR>	CD Player Network/DAC	@UPCONV<SP>OFF<CR> There are "OFF", "2fs", "4fs", "8fs", "16fs" and "DSD".
9	Fs	@?FS<CR>	CD Player Network/DAC	@FS<SP>44.1kHz<CR> This is sampling frequency of input source.
10	CODEC	@?CODEC<CR>	Network Player	@CODEC<SP>FLAC<CR> There are "WAV", "FLAC", "ALAC", "MP3", "AAC" and so on.
11	MQA	@?MQA<CR>	CD Player Network/DAC	@MQA<SP>MQA.<SP>192kHz<CR> There are "NON", "MQA", "MQA." and "MQB".
12	Volume	@?VOLUME<CR>	AMP	@VOLUME<SP>36<CR> @VOLUME<SP>-45dB<CR> There are "step" type and "-dB" type.