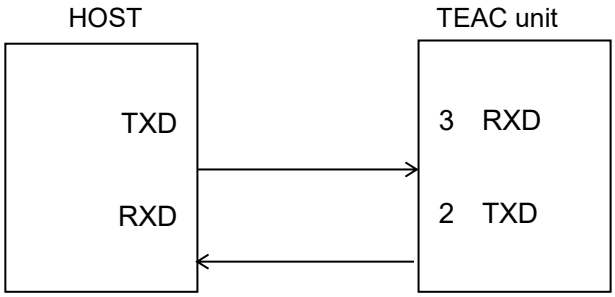
TEAC RS-232C Control Specification

Rev 1.1

1. Specification of RS-232C Connection

1-1. Hardware connection

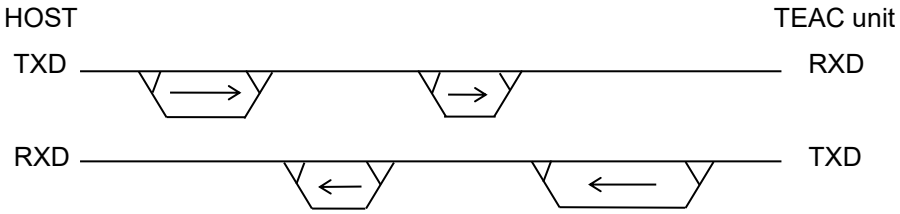


TEAC RS232 pin assignment: RXD : 3
TXD : 2

1-2. Specification of communication

Mode	:	Asynchronous Full-duplex
Transfer Rate	:	38400bps
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, one is “NORMAL command” which requests processing, and another is “REQUEST command” which requests status. ASCII code should be used for the commands. (case sensitive)

A start character ‘@’ and an end character CR(0x0D) should be added to both 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)

Following control codes are used for ACK or NAK.

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

1-4-1. Normal Command

This is a command that requests processing.

If the TEAC unit receive 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 TEAC unit.

Sending command from the host

“@KEY<SP>01<CR>”

After processing the command, the TEAC 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 TEAC unit.

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

Example: requesting media status to TEAC unit.

Commands from the host

“@?MEDIA<CR>”

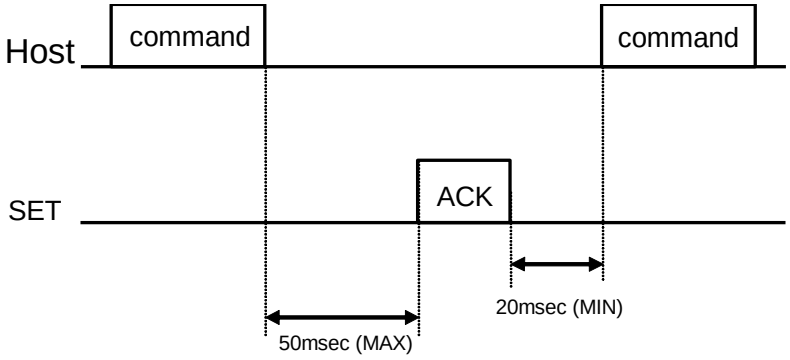
Return status from the TEAC unit, after received request command

“@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

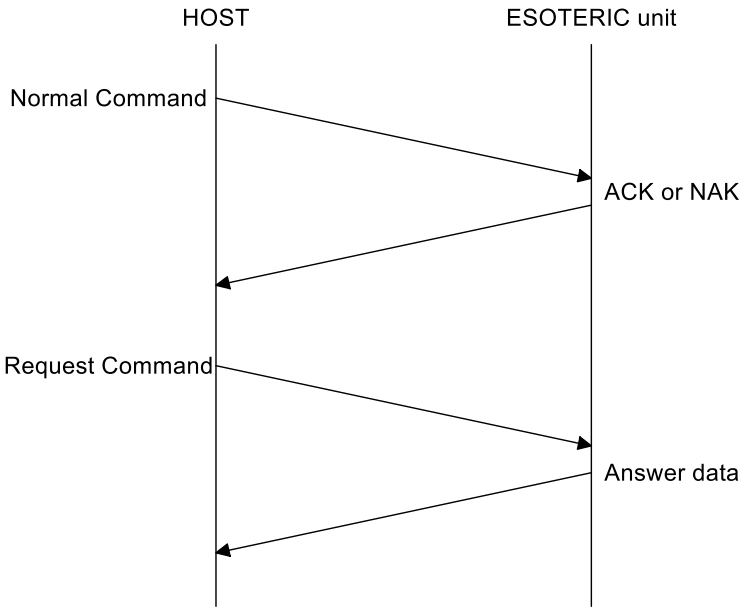
Delay more than 20ms when sending next command after receiving ACK from TEAC unit.



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	OPEN/CLOSE	@KEY<SP>00<CR>	CD Player
4	KEY	PLAY	@KEY<SP>01<CR>	CD Player
5	KEY	PAUSE	@KEY<SP>02<CR>	CD Player
6	KEY	STOP	@KEY<SP>03<CR>	CD Player
7	KEY	0	@KEY<SP>04<CR>	CD Player
8	KEY	1	@KEY<SP>05<CR>	CD Player
9	KEY	2	@KEY<SP>06<CR>	CD Player
10	KEY	3	@KEY<SP>07<CR>	CD Player
11	KEY	DOWN	@KEY<SP>09<CR>	Common
12	KEY	UP	@KEY<SP>0A<CR>	Common
13	KEY	SKIP R	@KEY<SP>0B<CR>	CD Player
14	KEY	SKIP F	@KEY<SP>0C<CR>	CD Player
15	KEY	4	@KEY<SP>0D<CR>	CD Player
16	KEY	5	@KEY<SP>0E<CR>	CD Player
17	KEY	6	@KEY<SP>0F<CR>	CD Player
18	KEY	VOLUME-	@KEY<SP>12<CR>	Common
19	KEY	VOLUME+	@KEY<SP>13<CR>	Common
20	KEY	7	@KEY<SP>15<CR>	Common
21	KEY	8	@KEY<SP>16<CR>	Common
22	KEY	9	@KEY<SP>17<CR>	Common
23	KEY	MUTE	@KEY<SP>1C<CR>	Common
24	KEY	PLYMODE	@KEY<SP>1E<CR>	CD Player
25	KEY	MENU	@KEY<SP>21<CR>	Network/DAC
26	KEY	<	@KEY<SP>22<CR>	Network/DAC
27	KEY	>	@KEY<SP>23<CR>	Network/DAC
28	KEY	I<<	@KEY<SP>24<CR>	Network/DAC
29	KEY	>>I	@KEY<SP>25<CR>	Network/DAC
30	KEY	PLAY	@KEY<SP>26<CR>	Network/DAC
31	KEY	PAUSE	@KEY<SP>27<CR>	Network/DAC
32	KEY	STOP	@KEY<SP>28<CR>	Network/DAC
33	KEY	Bluetooth	@KEY<SP>30<CR>	AMP
34	KEY	CD	@KEY<SP>31<CR>	AMP
35	KEY	NETWORK	@KEY<SP>32<CR>	AMP
36	KEY	USB	@KEY<SP>33<CR>	AMP
37	KEY	OPT1	@KEY<SP>34<CR>	AMP
38	KEY	OPT2	@KEY<SP>35<CR>	AMP

39	KEY	COAX1	@KEY<SP>36<CR>	AMP
40	KEY	COAX2	@KEY<SP>37<CR>	AMP
41	KEY	LINE	@KEY<SP>38<CR>	AMP
42	KEY	UP Convert	@KEY<SP>39<CR>	Common
43	KEY	FILTER	@KEY<SP>3A<CR>	Common
44	KEY	METER	@KEY<SP>3B<CR>	AMP
45	KEY	INFO	@KEY<SP>3C<CR>	Common
46	KEY	HP(OUTPUT)	@KEY<SP>3D<CR>	AMP
47	KEY	<	@KEY<SP>40<CR>	CD Player
48	KEY	>	@KEY<SP>41<CR>	CD Player
49	KEY	DISPLAY	@KEY<SP>42<CR>	Common
50	KEY	INPUT-	@KEY<SP>43<CR>	AMP
51	KEY	INPUT+	@KEY<SP>44<CR>	AMP
52	KEY	REPEAT	@KEY<SP>47<CR>	CD Player
53	KEY	MENU	@KEY<SP>4A<CR>	CD Player
54	KEY	CLEAR	@KEY<SP>4B<CR>	CD Player
55	KEY	PROGRAM	@KEY<SP>4C<CR>	CD Player
56	KEY	+10	@KEY<SP>4F<CR>	CD Player
57	KEY	ENTER	@KEY<SP>55<CR>	Common
58	KEY	DIMMER	@KEY<SP>5A<CR>	Common
59	VOLUME	0~100(S) -95.5~24(D)	@VOLUME<SP>26<SP>S<CR> @VOLUME<SP>-39.5<SP>D<CR>	AMP

1-5-2. 3Special commands

No.	Item		Command	For
1	KEY	VOL VAR	@KEY<SP>82<CR>	Common
2	KEY	VOL 0DB	@KEY<SP>83<CR>	Common
3	KEY	VOL 6DB	@KEY<SP>84<CR>	Common
4	KEY	CLK OFF	@KEY<SP>87<CR>	Common
5	KEY	CLK ASYNC	@KEY<SP>88<CR>	Common
6	KEY	CLK SYNC	@KEY<SP>89<CR>	Common
7	KEY	FACTORY RESET	@KEY<SP>8A<CR>	Common
8	INPUT	CD	@INPUT<SP>CD<CR>	Common
9	INPUT	USB	@INPUT<SP>USB<CR>	Common
10	INPUT	COAX	@INPUT<SP>COAX<SP>[1|2]<CR>	Common
11	INPUT	OPTICAL	@INPUT<SP>OPTICAL<SP>[1|2]<CR>	Common
12	INPUT	NETWORK	@INPUT<SP>NETWORK<CR>	Common
13	INPUT	Bluetooth	@INPUT<SP>Bluetooth<CR>	Common
14	INPUT	XLR	@INPUT<SP>XLR<CR>	Common
15	INPUT	RCA	@INPUT<SP>RCA<CR>	Common
16	AOUT	XLR	@AOUT<SP>XLR<SP>[2|3]<CR>	Common
17	AOUT	RCA	@AOUT<SP>RCA<CR>	Common
18	AOUT	HP(6.3mm)	@AOUT<SP>TRS<CR>	Common
19	AOUT	HP(XLR4)	@AOUT<SP>XLR4<SP>[B|A]<CR>	Common

1-5-3. Request commands

No.	Item	Command	for	Answer
1	Input	@?INPUT<CR>	common	@INPUT<SP>DISC<CR> There are "USB","NETWORK","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 "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.
13	FILTER	@?FILTER<CR>	CD Player Network/DAC	@FILTER<SP>ON<CR> There are “OFF”, “ON”
14	CLOCK	@?CLOCK<CR>	CD Player Network/DAC	@CLOCK<SP>OFF<CR> There are “OFF”, “ASYNC”, “SYNC”