# TASCAM CD-01U/CD-01UPRO

## CONTROL I/O Terminals
## RS-232C Protocol Specifications

Ver. 1.02

July 2005

TEAC

# 1. Overview

The CD-01U/CD-01U PRO (here referred to as "controlled device") functions can be controlled using a serial RS-232C connection from an external device, such as a computer. Such a device is referred to here as the "external controller".

# 2. Specifications

## 2.1. Electrical Specifications

| | |
|---|---|
| Conforms to standard | JIS X-5101 (equivalent to former JIS-C-6361 and EIA RS-232C standards) Note that this is not compatible with the RS-422 used in professional VTR units. |
| Impedance at receiver | When measured with an applied voltage of between +/-3 V and +/-15 V, the DC resistance is between 3 kohm and 7 kohm. Total load capacitance of < 2500 pF |
| Open circuit voltage at transmitter | < 25V |
| Open circuit voltage at receiver | < 2V |
| Signal voltage | When the open circuit voltage at the receiver is 0 V, the signal voltage is between +/-5 V and +/-15 V against a load impedance of between 3 kohm and 7 kohm. |
| Signal discrimination | Logical "1" = < -3V  Logical "0" = > +3V |

## 2.2. Communication format

| | |
|---|---|
| Circuit type | 3-wire, Half-duplex |
| Transmission type | Digital binary serial |
| Data speed (baud rate) | 9600/19200/38400 bit/sec |
| Word length | 8-bit |
| Parity bit | None |
| Stop bit | 1 bit |

(* Word length, parity bit, and stop bit of CD-01U are fixed.)

## 2.3. Connector pin-out

Connector                    D-sub 9pin female (Inch screw thread)



Terminal pin-out and input/output signals

| Pin No. | In/Out | Signal name | Description |
|---|---|---|---|
| 1 | - | NC | Not connected |
| 2 | In | Rx Data | Data received at this pin *1 |
| 3 | Out | Tx Data | Data transmitted from this pin |
| 4 | - | (Reserved) | Reserved |
| 5 | - | GND | Signal ground pin |
| 6 | - | (Reserved) | Reserved |
| 7 | - | (Reserved) | Reserved |
| 8 | - | (Reserved) | Reserved |
| 9 | - | NC | Not connected |

*1: Impress voltage complied with RS-232C standard to Rx Data.

*2: CD-01U doesn't have RTS/CTS terminals for loop-back in this connector. Make sure the specifications of external controller and if necessary, please have the loop-back circuit outside of the CD-01U.

TEAC Corporation

RXD 2

TXD 3

GND 5

CD-01U/CD-01U PRO

RXD

TXD

GND

External controller

TEAC Corporation
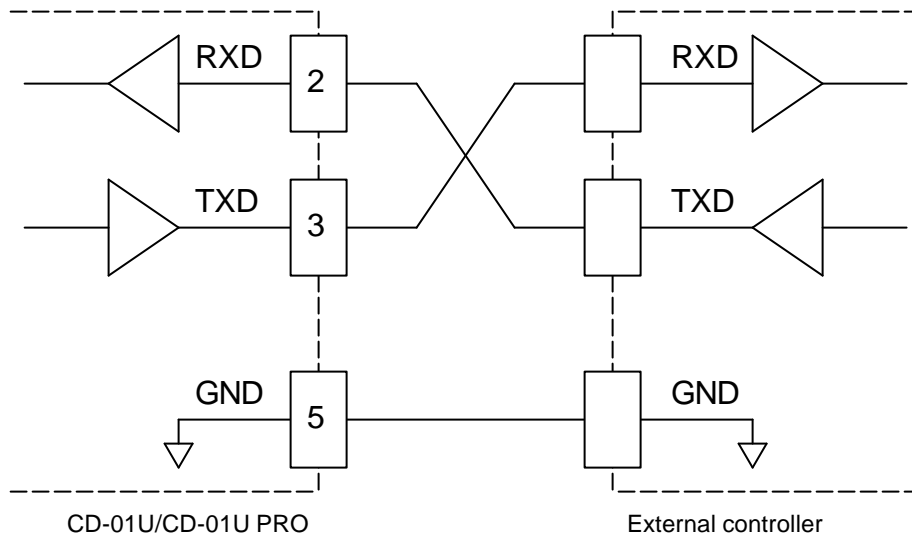
## 3. Command Format

### 3.1. Command Format Overview

| Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 | Byte 8 | … | Byte n |
|--------|--------|--------|--------|--------|--------|--------|--------|---|--------|
| LF | ID | Command | | Data 1 | Data 2 | Data 3 | Data 4 | … | CR |

The codes described here are transmitted in ASCII format (e.g. a command described as "23" is transmitted as ASCII '2' followed by ASCII '3').
Uppercase letters are used for letters 'A' through 'F'.
All commands must be prefixed by a line-feed (LF) character [0Ah] followed by a Machine ID.
All commands are terminated by a carriage return (CR) character [0Dh].


Sample commands


Sample 1: PLAY command (Machine ID=0)

        When the controlled device is in STOP/READY mode, this command starts playback.

        The PLAY command is [12], and it is transmitted using the following sequence:

| | | ID | Command | |
|--------|--------|--------|--------|--------|
| ASCII | LF | 0 | 1 | 2 | CR |
| HEX | 0Ah | 30h | 31h | 32h | 0Dh |

Sample 2: Direct search for track 12 (Machine ID=0)

        In order to perform this operation, "DIRECT TRACK SEARCH PRESET [23]" command is used.

        The track number is also sent as a parameter (data). This is sent in four bytes, as shown below:

| | | ID | Command | | Data: 12th track | | | |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|
| ASCII | LF | 0 | 2 | 3 | 1 | 2 | 0 | 0 | CR |
| HEX | 0Ah | 30h | 31h | 32h | 31h | 32h | 30h | 30h | 0Dh |

        The four data bytes represent, in order, the following digits of the track number: the "tens" digit (1), the "units" digit (2), the "thousands" digit (0), and the "hundreds" digit (0).


### 3.2. Machine ID


Machine ID of this device is fixed to [0]. A command with other Machine ID than [0] is ignored.

TEAC Corporation

### 3.3. List of Commands

| Control/Preset/Sense Command | | Return Command | |
|---|---|---|---|
| | | 88 | TIME DATA |
| 0F | INFORMATION REQUEST | 8F | INFORMATION RETURN |
| 10 | STOP | | |
| 12 | PLAY | | |
| 14 | READY | | |
| 15 | JOG | | |
| 16 | SHUTTLE | | |
| 18 | EJECT | | |
| 1A | TRACK SKIP | | |
| 1D | CALL | | |
| 20 | AUTO CUE LEVEL PRESET | A0 | AUTO CUE LEVEL RETURN |
| 23 | DIRECT TRACK SEARCH PRESET | | |
| 25 | PITCH CONTROL DATA PRESET | A5 | PITCH CONTROL DATA RETURN |
| 2C | TIME SEARCH PRESET | | |
| 2E | FADE IN/OUT TIME PRESET | AE | FADE IN/OUT TIME RETURN |
| 30 | AUTO CUE SELECT | B0 | AUTO CUE SELECT RETURN |
| 32 | EOM TRACK TIME PRESET | B2 | EOM TRACK TIME RETURN |
| 34 | TIMER RESUME PLAY SELECT | B4 | TIMER RESUME PLAY SELECT RETURN |
| 35 | PITCH CONTROL SELECT | B5 | PITCH CONTROL SELECT RETURN |
| 36 | AUTO READY SELECT | B6 | AUTO READY SELECT RETURN |
| 37 | REPEAT SELECT | B7 | REPEAT SELECT RETURN |
| 3A | INCR PLAY SELECT | BA | INCR PLAY SELECT RETURN |
| 3E | FADE IN/OUT SELECT | BE | FADE IN/OUT SELECT RETURN |
| 3F | TIME DATA SEND SELECT | BF | TIME DATA SEND SELECT RTURN |
| 4D | PLAY MODE SELECT | | |
| 4E | PLAY MODE SENSE | CE | PLAY MODE RTURN |
| 50 | MECHA STATUS SENSE | D0 | MECHA STATUS RETURN |
| 53 | ISRC SENSE | D3 | ISRC RETURN |
| 55 | TRACK No. SENSE | D5 | TRACK No. RETURN |
| 56 | DISC STATUS SENSE | D6 | DISC STATUS RETURN |
| 57 | CURRENT TRACK INFORMATION SENSE | D7 | CURRENT TRACK INFORMATION RETURN |
| 58 | CURRENT TRACK TIME SENSE | D8 | CURRENT TRACK TIME RETURN |
| 5D | TOTAL TRACK No./TOTAL TIME SENSE | DD | TOTAL TRACK No./TOTAL TIME RETURN |
| 5E | PGM TOTAL TRACK No./TOTAL TIME SENSE | DE | PGM TOTAL TRACK No./TOTAL TIME RETURN |
| | | F0 | ERROR SENSE REQUEST |
| | | F2 | ILLEGAL STATUS |
| | | F4 | POWER ON STATUS |
| | | F6 | CHANGE STATUS |
| 78 | ERROR SENSE | F8 | ERROR SENSE RETURN |

TEAC Corporation

Version up history

Ver. 1.00: Released version.
Ver. 1.02: Following commands to be added.
      PITCH CONTROL DATA PRESET [25]
      FADE IN/OUT TIME PRESET [2E]
      EOM TRACK TIME PRESET [32]
      TIMER RESUME PLAY SELECT [34]
      FADE IN/OUT SELECT [3E]
      TIME DATA SEND SELECT [3F]
      PLAY MODE SENSE [4E]
      ISRC SENSE [53]
      CURRENT TRACK TIME SENSE [58]
      TOTAL TRACK No. / TOTAL TIME SENSE [5D]
      PITCH CONTROL DATA RETURN [A5]
      FADE IN/OUT TIME RETURN [AE]
      EOM TRACK TIME RETURN [B2]
      TIMER RESUME PLAY SELECT RETURN [B4]
      FADE IN/OUT SELECT RETURN [BE]
      TIME DATA SEND SELECT RETURN [BF]
      PLAY MODE RETURN [CE]
      ISRC RETURN [D3]
      CURRENT TRACK TIME RETURN [D8]
      TOTAL TRACK No. / TOTAL TIME RETURN [DD]

TEAC Corporation

### 3.4. Command Sequence

The CD-01U/CD-01U PRO does not have the "ACK" command for the each transport control command and data preset command.

When a request command is transmitted from external controller to the controlled device, the controlled device sends an appropriate return command.

When the mechanism status of the controlled device is changed (i.e. from stop to play), or an error occurs, the controlled device sends a command to notify such change to the external controller.

Some samples of command sequence are described below:

Note that an interval of at least 20 ms must be left between commands.

Sample 1: Transport control (i.e. PLAY)
The controlled device is in STOP mode.
Send the transport control (PLAY) command from the external controller to the controlled device.
The controlled device starts playback and sends the CHANGE STATUS return command.

| Command | | | Status of the controlled device |
|---|---|---|---|
| **External controller** | | **Controlled device** | |
| | | | STOP |
| PLAY | -> | | Starts playback |
| | <- | CHANGED STATUS | Sent the CHANGE STATUS return command |

Sample 2: To preset a data (i.e. PITCH CONTROL DATA PRESET)
Send the PITCH CONTROL DATA PRESET command with pitch control value from the external controller to the controlled device.
The controlled device sets the pitch control data.

| Command | | | Status of the controlled device |
|---|---|---|---|
| **External controller** | | **Controlled device** | |
| PITCH CONTROL DATA PRESET (i.e. –1.0%) | -> | | Sets pitch control data to -1.0%. |

Sample 3: To request the status or a data currently set (i.e. PITCH CONTROL DATA)
Send the PITCH CONTROL DATA PRESET command with request data [FF] from the external controller to the controlled device.
If the controlled device has the pitch control data, the controlled device returns the PITCH CONTROL DATA RETURN with pitch control value.

| Command | | | Status of the controlled device |
|---|---|---|---|
| **External controller** | | **Controlled device** | |
| PITCH CONTROL DATA PRESET (with FF) | -> | | |
| | <- | PITCH CONTROL DATA RETURN | |

TEAC Corporation

## 4. Command Detail

Commands, data, and machine IDs which are described here are represented in characters (ASCII).
A command is a 2-byte character, a Machine ID is a 1-byte character, and each data is a 1-byte character.

### 4-1. INFORMATION REQUEST
Requests the internal software version number of the controlled device.

| | |
|---|---|
| Command | 0F |
| Data | None |
| Return | INFORMATION RETURN [8F] |

### 4-2. STOP
Puts the controlled device into STOP mode.

| | |
|---|---|
| Command | 10 |
| Data | None |
| Return | None |

### 4-3. PLAY
Puts the controlled device into PLAY mode.

| | |
|---|---|
| Command | 12 |
| Data | None |
| Return | None |

### 4-4. READY
Puts the controlled device into READY mode.

| | |
|---|---|
| Command | 14 |
| Data | 2 bytes |
| Return | None |

| Data 1 | Data 2 | Description | Remarks |
|---|---|---|---|
| 0 | 0 | Ready Off | |
| 0 | 1 | Ready On | |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

### 4-5. JOG
Turns the JOG mode on and off, and performs frame accurate search.

| | |
|---|---|
| Command | 15 |
| Data | 2 bytes |
| Return | None |

| Data 1 | Data 2 | Description | Remarks |
|---|---|---|---|
| 0 | 0 | Jog Off | Turns the Jog mode off |
| 0 | 1 | Jog On | Turns the Jog mode on |
| 1 | 0 | Jog Forward | Frame accurate search in forward direction |
| 1 | 1 | Jog Reverse | Frame accurate search in backward direction |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

TEAC Corporation

**4-6. SHUTTLE**

Performs the search function in SHUTTLE mode.

SHUTTLE mode is maintained until the other command such as STOP, PLAY, or READY is received.

| | | |
|---|---|---|
| Command | 16 |
| Data | 2 bytes |
| Return | None |

| Data 1 | Data 2 | Description | Remarks |
|---|---|---|---|
| 0 | 0 | Shuttle Forward | Searches in shuttle mode in forward direction |
| 0 | 1 | Shuttle Reverse | Searches in shuttle mode in backward direction |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

**4-7. EJECT**

Ejects or load a disc.

| | | |
|---|---|---|
| Command | 18 |
| Data | None |
| Return | None |

**4-8. TRACK SKIP**

Allows track selection to the previous or next start-of-track position.

The transport mode when this command is received (playing or pausing) is maintained after skipping.

| | | |
|---|---|---|
| Command | 1A |
| Data | 2 bytes |
| Return | None |

| Data 1 | Data 2 | Description | Remarks |
|---|---|---|---|
| 0 | 0 | Track Skip Next | Skips to the next track. |
| 0 | 1 | Track Skip Previous | If the playback position is beginning of a track (within 1 sec.), skips to the start point of the previous track. If not, skips to the start point of the current track. |
| 1 | 0 | Index Skip Next | Skips to the next Index. |
| 1 | 1 | Index Skip Previous | Skips to the previous index. |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

**4-9. CALL**

Locates to the Call Point and puts the controlled device into Ready mode.

| | | |
|---|---|---|
| Command | 1D |
| Data | None |
| Return | None |

TEAC Corporation

#### 4-10. AUTO CUE LEVEL PRESET

Sets the Auto Cue level of the controlled device.
When this command is transmitted with request data ([FF]), the controlled device returns the AUTO
CUE LEVEL RETURN command [A0].
The Auto Cue function is turned on and off using the AUTO CUE SELECT command [30].

| | | |
|---|---|---|
| Command | 20 |
| Data | 2 bytes |
| Return | AUTO CUE LEVEL RETURN [A0] |

| Data 1 | Data 2 | Description | Remarks |
|---|---|---|---|
| 0 | 0 | -24dB | Sets the Auto Cue detect level to –24dB. |
| 0 | 1 | -30dB | Sets the Auto Cue detect level to –30dB. |
| 0 | 2 | -36dB | Sets the Auto Cue detect level to –36dB. |
| 0 | 3 | -42dB | Sets the Auto Cue detect level to –42dB. |
| 0 | 4 | -48dB | Sets the Auto Cue detect level to –48dB. |
| 0 | 5 | -54dB | Sets the Auto Cue detect level to –54dB. |
| 0 | 6 | -60dB | Sets the Auto Cue detect level to –60dB. |
| 0 | 7 | -66dB | Sets the Auto Cue detect level to –66dB. |
| 0 | 8 | -72dB | Sets the Auto Cue detect level to –72dB. |
| F | F | Auto Cue level request | Requests the currently set the Auto Cue detect level. |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

#### 4-11. DIRECT TRACK SEARCH PRESET

Sets a track number. If the controlled device is in stop or play mode, the specified track is played back.
If the controlled device is in ready mode, the unit will enter ready mode at the start of the specified track.
This command is judged to be illegal if an attempt is made to jump to a non-existent track (e.g. track 11
on a 10-track disc).

| | | |
|---|---|---|
| Command | 23 |
| Data | 4 bytes |
| Return | None |

| | Description | Remarks |
|---|---|---|
| Data 1 | Tens digit of track number | Track number<br>   Sample) 2300: Track 23 |
| Data 2 | Units digit of track number | |
| Data 3 | Thousands digit of track number | |
| Data 4 | Hundreds of track number | |

· If the specified track number does not exist on the disc, the controlled device sends ILLEGAL [F2].

### 4-12. PITCH CONTROL DATA PRESET

Sets the Pitch Control value from –12.5% to +12.5% in 0.1% steps.
When this command is transmitted with request data ([FF]), the controlled device returns the PITCH CONTROL DATA RETURN command [A5].
The pitch control function is turned on and off using the PITCH CONTROL SELECT command [35].

    Command         25
    Data            4 bytes or 2 bytes
    Return          PITCH DATA RETURN [A5]

| Data 1 | Data 2 | Data 3 | Data 4 | Description | Remarks |
|--------|--------|--------|--------|-------------|---------|
| N2 | N3 | 0<br>1 | N1 | Preset % | Positive (+) value<br>Negative (-) value<br>N1: Tens of pitch control value<br>N2: Units of pitch control value<br>N3: 1st decimal of pitch control value<br>[Sample] 2010: -2.0% |
| F | F | … | | Pitch Control value request | Requests the currently set the Pitch Control value |

· If the specified data is out of range, the controlled device sends ILLEGAL [F2].

### 4-13. TIME SEARCH PRESET

Locates to the specified track and time in minutes and seconds. If the controlled device is in stop or play mode, playback will start at the specified time. If the controlled device is in ready mode, the playback position will move to the specified time, and the controlled device will enter ready mode there. The time specified must be a valid time (e.g. the track must exist on the disc).
This command cannot use for MP3 discs.

    Command         2C
    Data            12 bytes
    Return          None

| | Description | Remarks |
|--|-------------|---------|
| **Data 1** | Tens digit of track number | [Sample]<br>020003001030: 2tr 03m 10s 30f |
| **Data 2** | Units digit of track number | |
| **Data 3** | Thousands digit of track number | |
| **Data 4** | Hundreds digit of track number | |
| **Data 5** | Tens digit of minutes | |
| **Data 6** | Units digit of minutes | |
| **Data 7** | Thousands digit of minutes | |
| **Data 8** | Hundreds digit of minutes | |
| **Data 9** | Tens digit of seconds | |
| **Data 10** | Units digit of seconds | |
| **Data 11** | Tens digit of frames | |
| **Data 12** | Units digit of frames | |

· If the specified data (Track number and time) does not exist on the disc, the controlled device sends ILLEGAL [F2].

11                                                    TEAC Corporation

#### 4-14. FADE IN/OUT TIME PRESET

Sets the fade in and out time from 1 to 10 seconds in 1 second steps.
When this command is transmitted with request data ([00FF] or [01FF]), the controlled device returns the FADE IN/OUT TIME RETURN command [AE].
The FADE mode is turned on and off using the FADE IN/OUT SELECT command [3E].

|        |                              |
|--------|------------------------------|
| Command | 2E                          |
| Data    | 4 bytes                     |
| Return  | FADE IN/OUT TIME RETURN [AE] |

| Data 1 | Data 2 | Data 3 | Data 4 | Remarks |
|--------|--------|--------|--------|---------|
| 0 | 0 | Tens digit of Fade In time | Units digit of Fade In time | Sets the Fade In time |
| 0 | 0 | F | F | Requests the Fade In time |
| 0 | 1 | Tens digit of Fade Out time | Units digit of Fade Out time | Sets the fade Out time |
| 0 | 1 | F | F | Requests the Fade Out time |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

· If the specified data is out of range, the controlled device sends ILLEGAL [F2].

#### 4-15. AUTO CUE SELECT

Turns the Auto Cue function on and off.
When this command is transmitted with request data ([FF]), the controlled device returns the AUTO CUE SELECT RETURN command [B0].
The Auto Cue level is set using the AUTO CUE LEVEL PRESET command [20].

|        |                            |
|--------|----------------------------|
| Command | 30                        |
| Data    | 2 bytes                   |
| Return  | AUTO CUE SELECT RETURN [B0] |

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | AUTO CUE MODE OFF | Turns the Auto Cue function off |
| 0 | 1 | AUTO CUE MODE ON | Turns the Auto Cue function on |
| F | F | Auto Cue mode status request | Requests the Auto Cue mode status |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

#### 4-16. EOM TRACK TIME SELECT

Sets the EOM (End of message) time.
When this command is transmitted with request data ([FF]), the controlled device returns the EOM TRACK TIME RETURN command [B2].
The EOM time should be set to 00, 05, 10, 15, 20, 25, 30, or 35.

|        |                          |
|--------|--------------------------|
| Command | 32                      |
| Data    | 2 bytes                 |
| Return  | EOM TRACK TIME RETURN [B2] |

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| N1 | N2 | Sec | N1: Tens digit of EOM time<br>N2: Units digit of EOM time<br>(00, 05, 10, 15, 20, 25, 30, or 35) |
| F | F | EOM time request | Requests the EOM time |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

TEAC Corporation

### 4-17. TIMER/RESUME PLAY SELECT

Turns the Power-on-play mode and Resume Play mode on and off.

When this command is transmitted with request data ([FF]), the controlled device sends the RESUME PLAY SELECT RETURN command [B4].

|       |                  |
|-------|------------------|
| Command | 34 |
| Data | 2 bytes |
| Return | RESUME PLAY SELECT RETURN [B4] |

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Power-on-play OFF / RESUME OFF | |
| 0 | 1 | Power-on-play ON / RESUME OFF | |
| 0 | 2 | Power-on-play OFF / RESUME ON | |
| 0 | 3 | Power-on-play ON / RESUME ON | |
| F | F | Power-on-play/Resume status request | Requests the status of Power-on-play / Resume mode |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

### 4-18. PITCH CONTROL SELECT

Turns the Pitch Control mode on and off.

When this command is transmitted with request data [FF], the controlled device returns the PITCH CONTROL SELECT RETURN command [B5].

The Pitch Control value is set using the PITCH CONTROL DATA PRESET command [25].

|       |                  |
|-------|------------------|
| Command | 35 |
| Data | 2 bytes |
| Return | PITCH CONTROL SELECT RETURN [B5] |

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Pitch Control Off | Turns the Pitch Control mode off |
| 0 | 1 | Pitch Control On | Turns the Pitch Control mode on |
| F | F | Pitch Control mode status request | Requests the Pitch Control mode status |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

### 4-19. AUTO READY SELECT

Turns the Auto Ready mode on and off.

When this command is transmitted with request data [FF], the controlled device returns the AUTO READY SELECT RETURN command [B6].

|       |                  |
|-------|------------------|
| Command | 36 |
| Data | 2 bytes |
| Return | AUTO READY SELECT RETURN [B6] |

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Auto Ready Off | Turns the Auto Ready function off |
| 0 | 1 | Auto Ready On | Turns the Auto Ready function on |
| F | F | Auto Ready mode status request | Requests the Auto Ready mode status |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

TEAC Corporation

### 4-20. REPEAT SELECT
Sets the Repeat mode.
When this command is transmitted with request data [FF], the controlled device returns the REPEAT SELECT RETURN command [B7].

|          |                            |
|----------|----------------------------|
| Command  | 37                         |
| Data     | 2 bytes                    |
| Return   | REPEAT SELECT RETURN [B7]  |

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Repeat Off | Turns the repeat mode off |
| 0 | 1 | Repeat On | Turns the repeat mode on |
| F | F | Repeat mode status request | Requests the repeat mode status |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

### 4-21. INCR PLAY SELECT
Turns the Incremental Play mode on and off.
When this command is transmitted with request data [FF], the controlled device returns the INCR PLAY SELECT RETURN command [BA].

|          |                              |
|----------|------------------------------|
| Command  | 3A                           |
| Data     | 2 bytes                      |
| Return   | INCR PLAY SELECT RETURN [BA] |

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Incremental Play Off | Turns the Incremental Play function off |
| 0 | 1 | Incremental Play On | Turns the Incremental Play function on |
| F | F | Incremental Play function status request | Requests the Incremental Play function status |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

### 4-22. FADE IN/OUT SELECT
Sets the Fade in/out mode.
When this command is transmitted with request data [FF], the controlled device returns the FADE IN/OUT SELECT RETURN command [BE].
Fade In and Out time are set using the FADE IN/OUT TIME PRESET command [2E].

|          |                               |
|----------|-------------------------------|
| Command  | 3E                            |
| Data     | 2 bytes                       |
| Return   | FADE IN/OUT SELECT RETURN [BE] |

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Fade In Off / Fade Out Off | |
| 0 | 1 | Fade In On / Fade Out Off | |
| 1 | 0 | Fade In Off / Fade Out ON | |
| 1 | 1 | Fade In On / Fade Out On | |
| F | F | Fade In/Out status request | Requests the Fade In/Out mode status |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

TEAC Corporation

## 4-23. TIME DATA SEND SELECT

Sets the Time mode of the time data that is sent out from the controlled device automatically (without any request command).

When this command is transmitted with request data [FF], the controlled device returns the TIME DATA SEND SELECT RETURN command [BF].

When specified data includes "Without Frame" information, frame information will not shown on the display of the controlled device.

| | |
|---|---|
| Command | 3F |
| Data | 2 bytes |
| Return | TIME DATA SEND SELECT RETURN [BF] |

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Off | Time data (TIME DATA [88]) will not be sent out from the controlled device automatically |
| 0 | 1 | Elapsed Time | With frame data |
| 0 | 2 | Remain Time | With frame data |
| 0 | 4 | Total Remain Time | With frame data |
| 1 | 1 | Elapsed Time | Without frame data |
| 1 | 2 | Remain Time | Without frame data |
| 1 | 4 | Total Remain Time | Without frame data |
| F | F | Time Data Send status request | Requests the Output Time Data status |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

## 4-24. PLAY MODE SELECT

Sets the Play mode.

The status of the PLAY mode can be requested using the PLAY MODE SENSE command [4E].

| | |
|---|---|
| Command | 4D |
| Data | 2 bytes |
| Return | None |

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Normal Play | Sets the Play Mode to normal (continuous) play mode |
| 0 | 1 | Single Play | Sets the Play Mode to single play mode |
| 0 | 2 | Program Play | Sets the Play Mode to program play mode |
| 0 | 3 | Random Play | Sets the Play Mode to random play mode |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

## 4-25. PLAY MOSE SENSE

Requests the status of the Play mode.

The contents of the reply are described in the PLAY MODE RETURN command.

| | |
|---|---|
| Command | 4E |
| Data | None |
| Return | PLAY MODE RETURN [CE] |

## 4-26. MECHA STATUS SENSE

Requests the status of the mechanism.

The contents of the reply are described in the MECHA STATUS RETURN command.

| | |
|---|---|
| Command | 50 |
| Data | None |
| Return | MECHA STATSU RETURN [D0] |

TEAC Corporation

**4-27. ISRC SENSE**
Requests the output of the ISRC code of the current track (ready mode) or the catalog (stop mode).
This data can only be output when a playback-only disc is loaded.

| | |
|---|---|
| Command | 53 |
| Data | None |
| Return | ISRC RETURN [D3] |

**4-28. TRACK No. SENSE**
Requests the current track number.

| | |
|---|---|
| Command | 55 |
| Data | None |
| Return | TRACK No. STATUS RETURN [D5] |

**4-29. DISC STATUS SENSE**
Requests information on the presence or absence of a disc in the controlled device, and whether a disc is recordable or playback-only.

The contents of the reply are described in the DISC STATUS RETURN command.

| | |
|---|---|
| Command | 56 |
| Data | None |
| Return | DISC STATUS RETURN [D6] |

**4-30. CURRENT TRACK INFORMATION SENSE**
Requests the elapsed time form of the current track time (play or ready modes).

| | |
|---|---|
| Command | 57 |
| Data | None |
| Return | CURRENT TRACK INFORMATION RETURN [D7] |

**4-31. CURRENT TRACK TIME SENSE**
Requests the specific form of the current track time (play or ready modes).

| | |
|---|---|
| Command | 58 |
| Machine ID | 0 |
| Data | 2 bytes |
| Return | CURRENT TRACK TIME RETURN [D8] |

| Data 1 | Data 2 | Description | Remarks |
|---|---|---|---|
| 0 | 0 | Elapsed Time | Requests the elapsed time form of the track time |
| 0 | 1 | Remain Time | Requests the remaining time form of the track time |
| 0 | 3 | Total Remain Time | Requests the Total remaining time form of the track time |

· If the specified data is other than described above, the controlled device sends ILLEGAL [F2].

**4-32. TOTAL TRACK No./TOTAL TIME SENSE**
Requests the total number of the tracks and the running time on a disc.
In MP3 discs, requests the total number of tracks.

| | |
|---|---|
| Command | 5D |
| Data | None |
| Return | TOTAL TRACK No./TOTAL TIME RETURN [DD] |

**4-33. PGM TOTAL TRACK No./TOTAL TIME SENSE**
Requests the total number of the programmed tracks and the running time of the programmed tracks.

| | |
|---|---|
| Command | 5E |
| Data | None |
| Return | PGM TOTAL TRACK No./TOTAL TIME RETURN [DE] |

TEAC Corporation

**4-34. ERROR SENSE**

Should be transmitted by the external controller on receipt of an ERROR SENSE REQUEST [F0] from the controlled device, to determine the exact error.

The contents of the reply are described in the ERROR SENSE RETURN command.

| | |
|---|---|
| Command | 78 |
| Data | None |
| Return | ERROR SENSE RETURN [F8] |

TEAC Corporation

# 5. Return Command Detail

### 5-1. TIME DATA

When the Time mode is set to other than "OFF" with TIME DATA SEND SELECT command [3F], controlled device outputs the time data in specified form by TIME DATA SEND SELECT command [3F].

Command        88
Data        8 bytes

|  | Description | Remarks |
|---|---|---|
| **Data 1** | Tens digit of minutes | |
| **Data 2** | Units digit of minutes | |
| **Data 3** | Thousands digit of minutes | |
| **Data 4** | Hundreds digit of minutes | |
| **Data 5** | Tens digit of seconds | |
| **Data 6** | Units digit of seconds | |
| **Data 7** | Tens digit of frames | |
| **Data 8** | Units digit of frames | |

### 5-2. INFORMATION RETURN

Transmitted in response to an INFORMATION REQUEST command [0F].

Returns the software version of the controlled device.

Command        8F
Data        4 bytes
Request command   INFORMATION REQUEST [0F]

| **Data 1** | Tens digit of software version | Sample data for Data 1 - Data 4 |
|---|---|---|
| **Data 2** | Units digit of software version | 0100        Version 1.00 |
| **Data 3** | 1$^{st}$ decimal digit of software version | |
| **Data 4** | Hundreds digit of software version | |

### 5-3. AUTO CUE LEVEL RETURN

Transmitted in response to an AUTO CUE LEVEL PRESET command [20] with the request data ([FF]) to show the currently set Auto Cue level.

Command        A0
Data        2 bytes
Request command   AUTO CUE LEVEL PRESET [20]

| Data 1 | Data 2 | Description | Remarks |
|---|---|---|---|
| 0 | 0 | -24dB | Auto Cue detect level is set to –24dB |
| 0 | 1 | -30dB | Auto Cue detect level is set to –30dB |
| 0 | 2 | -36dB | Auto Cue detect level is set to –36dB |
| 0 | 3 | -42dB | Auto Cue detect level is set to –42dB |
| 0 | 4 | -48dB | Auto Cue detect level is set to –48dB |
| 0 | 5 | -54dB | Auto Cue detect level is set to –54dB |
| 0 | 6 | -60dB | Auto Cue detect level is set to –60dB |
| 0 | 7 | -66dB | Auto Cue detect level is set to –66dB |
| 0 | 8 | -72dB | Auto Cue detect level is set to –72dB |

TEAC Corporation

### 5-4. PITCH CONTROL DATA RETURN

Transmitted in response to a PITCH CONTROL DATA PRESET command [25] with the request data ([FF]) to show the currently set Pitch Control value.

Command     A5
Data       4 bytes
Request command PITCH CONTROL DATA PRESET [25]

| Data 1 | Data 2 | Data 3 | Data 4 | Description | Remarks |
|--------|--------|--------|--------|-------------|---------|
| N2 | N3 | 0<br>1 | N1 | Preset % | Positive (+) value<br>Negative (-) value<br>N1: Tens digit of pitch control value<br>N2: Units digit of pitch control value<br>N3: 1$^{st}$ decimal of pitch control value<br>Sample) 2310: -2.3% |

### 5-5. FADE IN/OUT TIME RETURN

Transmitted in response to a FADE IN/OUT TIME PRESET command [2E] with the request data ([00FF] or [01FF]) to show the currently set the Fade In and Out time.

Command     AE
Data       4 bytes
Request command FADE IN/OUT TIME PRESET [2E]

| Data 1 | Data 2 | Data 3 | Data 4 | Remarks |
|--------|--------|--------|--------|---------|
| 0 | 0 | Tens digit of Fade In time | Units digit of Fade In time | Fade In time |
| 0 | 1 | Tens digit of Fade Out time | Units digit of Fade Out time | Fade Out time |

### 5-6. AUTO CUE SELECT RETURN

Transmitted in response to an AUTO CUE SELECT command [30] with the request data ([FF]) to show the currently set the Auto Cue mode status .

Command     B0
Data       2 bytes
Request command AUTO CUE SELECT [30]

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Auto Cue Off | Auto Cue function is turned off |
| 0 | 1 | Auto Cue On | Auto Cue function is turned on |

### 5-7. EOM TRACK TIME RETURN

Transmitted in response to an EOM TRACK TIME PRESET command [32] with the request data ([FF]) to show the currently set EOM time.

Command     B2
Data       2 bytes
Request command EOM TRACK TIME PRESET [32]

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| N1 | N2 | Sec | N1: Tens digit of EOM time<br>N2: Units digit of EOM time<br>00=Off |

             TEAC Corporation

### 5-8. TIMER/RESUME PLAY SELECT RETURN

Transmitted in response to a TIMER/RESUME PLAY SELECT command [34] with the request data ([FF]) to show the currently set the Power-on-play/Resume function status .

        Command               B4
        Data                     2 bytes
        Request command   TIMER/RESUME PLAY SELECT [34]

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Timer Off/Resume Off | |
| 0 | 1 | Timer On/Resume Off | |
| 0 | 2 | Timer Off/Resume On | |
| 0 | 3 | Timer On/Resume On | |

### 5-9. PITCH CONTROL SELECT RETURN

Transmitted in response to a PITCH CONTROL SELECT command [35] with the request data ([FF]) to show the currently set the Pitch Control mode status .

        Command               B5
        Data                     2 bytes
        Request command   PITCH CONTROL SELECT [35]

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Pitch Control Off | Pitch Control mode is turned off |
| 0 | 1 | Pitch Control On | Pitch Control mode is turned on |

### 5-10. AUTO READY SELECT RETURN

Transmitted in response to an AUTO READY SELECT command [36] with the request data ([FF]) to show the currently set the Auto Ready mode status .

        Command               B6
        Data                     2 bytes
        Request command   AUTO READY SELECT [36]

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Auto Ready Off | Auto Ready function is turned off |
| 0 | 1 | Auto Ready On | Auto Ready function is turned on |

### 5-11. REPEAT SELECT RETURN

Transmitted in response to a REPEAT SELECT command [37] with the request data ([FF]) to show the currently set the repeat function status .

        Command               B7
        Data                     2 bytes
        Request command   REPEAT SELECT [37]

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Repeat Off | Repeat mode is off |
| 0 | 1 | Repeat On | Repeat mode is on |

        TEAC Corporation

### 5-12. INCR PLAY SELECT RETURN

Transmitted in response to an INCR PLAY SELECT command [3A] with the request data ([FF]) to show the currently set the Incremental Play function status .

    Command             BA
    Data                2 bytes
    Request command   INCR PLAY SELECT [3A]

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | INCR Play Off | Incremental Play function is turned off |
| 0 | 1 | INCR Play On | Incremental Play function is turned on |

### 5-13. FADE IN/OUT SELECT RETURN

Transmitted in response to a FADE IN/OUT SELECT command [3E] with the request data ([FF]) to show the currently set the Fade In/Out function status .

    Command             BE
    Data                2 bytes
    Request command   FADE IN/OUT SELECT [3E]

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Fade In Off / Fade Out Off | |
| 0 | 1 | Fade In On / Fade Out Off | |
| 1 | 0 | Fade In Off / Fade Out On | |
| 1 | 1 | Fade In On / Fade Out On | |

### 5-14. TIME DATA SEND SELECT RETURN

Transmitted in response to a TIME DATA SEND SELECT command [3F] with the request data ([FF]) to show the currently set the output time data status .

    Command             BF
    Data                2 bytes
    Request command   TIME DATA SEND SELECT [3F]

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Off | |
| 0 | 1 | Elapsed Time with frames | |
| 0 | 2 | Remain Time with frames | |
| 0 | 4 | Total Remain Time with frames | |
| 1 | 1 | Elapsed Time without frames | |
| 1 | 2 | Remain Time without frames | |
| 1 | 4 | Total Remain Time without frames | |

### 5-15. PLAY MODE RETURN

Transmitted in response to a PLAY MODE SENSE command [4E] with the request data ([FF]) to show the currently set the Play Mode status .

    Command             CE
    Data                2 bytes
    Request command   PLAY MODE SENSE [4E]

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | Continue | |
| 0 | 1 | Single | |
| 0 | 3 | A-B Repeat | |
| 0 | 4 | Program (program is existing) | |
| 0 | 5 | Program (no programmed tracks) | |
| 0 | 6 | Random | |

### 5-16. MECHA STATUS RETURN

Transmitted in response to a MECHA STATUS SENSE command [50] and gives the current mechanism status of the controlled device.

Command          D0
Data                2 bytes
Request command   MECHA STATUS SENSE [50]

| Data 1 | Data 2 | Description | Remarks |
|--------|--------|-------------|---------|
| 0 | 0 | No Disc | A disc is not loaded |
| 0 | 1 | Eject / load | Ejecting or Loading a disc |
| 0 | 2 | Eject | Ejecting a disc |
| 1 | 0 | Stop | Transport is in stop mode |
| 1 | 1 | Play | Transport is playing |
| 1 | 2 | Ready | Transport is pausing |

### 5-17. ISRC RETURN

Transmitted in response to an ISRC SENSE command [53], giving the ISRC disc catalog number (stop mode) or current track code (play or ready modes).
ISRC codes are only available from playback-only discs. If an attempt is made to read an ISRC code from any other type of disc, the controlled device will return "0". The '0' will also be transmitted if an attempt is made to read an ISRC code from a playback-only disc which has no such codes recorded on it.

Command          D3
Data                25 bytes
Request command   ISRC SENSE [53]

| | Description | Remarks |
|---|-------------|---------|
| Data 1-12 | ISRC code | |
| Data 13-25 | Catalog No. | |

### 5-18. TRACK No. RETURN

Transmitted in response to a TRACK No. SENSE command [55], giving the current track status.

Command          D5
Data                6 bytes
Request command   TRACK No. SENSE [55]

| | Description | Remarks |
|---|-------------|---------|
| Data 1 | EOM Status | 00: Does not show the EOM status |
| Data 2 | | 01: Shows the EOM status |
| Data 3 | Tens digit of the Track Number | |
| Data 4 | Units digit of the Track Number | |
| Data 5 | Thousands digit of the Track Number | |
| Data 6 | Hundreds digit of the Track Number | |

TEAC Corporation

### 5-19. DISC STATUS RETURN

Transmitted in response to a DISC STATUS SENSE command [56], giving the status of the loaded disc.

| | |
|---|---|
| Command | D6 |
| Data | 4 bytes |
| Request command | DISC STATUS SENSE [56] |

| | | |
|---|---|---|
| **Data 1** | Disc Status | 00: No Disc |
| **Data 2** | | 01: A disc has been loaded |
| **Data 3** | Disc Type | 00: CD-DA<br>02: CD-DA (RW)<br>10: CD-Data (ROM)<br>12: CD-Data (RW) |
| **Data 4** | | |

### 5-20. CURRENT TRACK INFORMATION RETURN

Transmitted in response to a CURRENT TRACK INFORMATION SENSE command [57], giving the elapsed time of the current track.

| | |
|---|---|
| Command | D7 |
| Data | 12 bytes |
| Request command | CURRENT TRACK INFORMATION SENSE [57] |

| | Description | Remarks |
|---|---|---|
| **Data 1** | Tens digit of the track number or tens digit of the program number | When Play Mode is set to PGM mode, returns the program number with data1 and data2. |
| **Data 2** | Units digit of the track number or Units digit of the program number | |
| **Data 3** | Thousands digit of the track number | |
| **Data 4** | Hundreds digit of the track number | |
| **Data 5** | Tens digit of minutes | |
| **Data 6** | Units digit of minutes | |
| **Data 7** | Thousands digit of minutes | |
| **Data 8** | Hundreds digit of minutes | |
| **Data 9** | Tens digit of seconds | |
| **Data 10** | Units digit of seconds | |
| **Data 11** | Tens digit of frames | |
| **Data 12** | Units digit of flames | |

TEAC Corporation

### 5-21. CURRENT TRACK TIME RETURN
Transmitted in response to a CURRENT TRACK TIME SENSE command [58], giving the specified form of the time data of the current track.

        Command              D8
        Data                   10 bytes
        Request command   CURRENT TRACK TIME SENSE [58]

|  | Description | Remarks |
|---|---|---|
| **Data 1** | Time Mode | 00: Elapsed time<br>03: Total remain time<br>10: Track remain time |
| **Data 2** | | |
| **Data 3** | Tens digit of minutes | |
| **Data 4** | Units digit of minutes | |
| **Data 5** | Thousands digit of minutes | |
| **Data 6** | Hundreds digit of minutes | |
| **Data 7** | Tens digit of seconds | |
| **Data 8** | Units digit of seconds | |
| **Data 9** | Tens digit of frames | |
| **Data 10** | Units digit of frames | |

### 5-22. TOTAL TRACK No./TOTAL TIME RETURN
Transmitted in response to a TOTAL TRACK No./TOTAL TIME SENSE command [5D], giving the total number of the tracks and the running time on a disc.

        Command               DD
        Data                   12 bytes
        Request command   TOTAL TRACK No./TOTAL TIME SENSE [5D]

|  | Description | Remarks |
|---|---|---|
| **Data 1** | Tens digit of total number of tracks | |
| **Data 2** | Units digit of total number of tracks | |
| **Data 3** | Thousands digit of total number of tracks | |
| **Data 4** | Hundreds digit of total number of tracks | |
| **Data 5** | Tens digit of minutes | |
| **Data 6** | Units digit of minutes | |
| **Data 7** | Thousands digit of minutes | |
| **Data 8** | Hundreds digit of minutes | |
| **Data 9** | Tens digit of seconds | |
| **Data 10** | Units digit of seconds | |
| **Data 11** | Tens digit of frames | |
| **Data 12** | Units digit of frames | |

        TEAC Corporation

## 5-23. PGM TOTAL TRACK No./TOTAL TIME RETURN

Transmitted in response to a PGM TOTAL TRACK No./TOTAL TIME SENSE command [5E], giving the total number of the programmed tracks and the running time of the programmed tracks.

Command          DE
Data              12 bytes
Request command   PGM TOTAL TRACK No./TOTAL TIME SENSE [5E]

|  | Description | Remarks |
|---|---|---|
| **Data 1** | Tens digit of total tracks |  |
| **Data 2** | Units digit of total tracks |  |
| **Data 3** | Thousands digit of total tracks |  |
| **Data 4** | Hundreds digit of total tracks |  |
| **Data 5** | Tens digit of minutes |  |
| **Data 6** | Units digit of minutes |  |
| **Data 7** | Thousands digit of minutes |  |
| **Data 8** | Hundreds digit of minutes |  |
| **Data 9** | Tens digit of seconds |  |
| **Data 10** | Units digit of seconds |  |
| **Data 11** | Tens digit of frames |  |
| **Data 12** | Units digit of frames |  |

## 5-24. ERROR SENSE REQUEST

Transmitted from the controlled device to the external controller to indicate an error condition. On receipt of this message, the external controller should issue an ERROR SENSE request [78] in order to determine the error type.

Command          F0
Data              None
Request command  None

## 5-25. ILLEGAL STATUS

Transmitted from the controlled device to the external controller in order to indicate illegal status, caused by an invalid command having been received. The external controller does not need to reply to this message (though it may, of course, attempt to re-send a corrected version of the message, etc.)

Command          F2
Data              None
Request command  None

## 5-26. POWER ON STATUS

Transmitted from the controlled device to the external controller in order to signal power-up.

Command          F4
Data              None
Request command  None

## 5-27. CHANGE STATUS

Transmitted from the controlled device to the external controller. There are two types of change which may be transmitted, each or which requires a reply by the external controller, as explained below.

Command          F6
Data              2 bytes
Request command  None

| Data 1 | Data 2 | Description | Remarks |
|---|---|---|---|
| 0 | 0 | Mechanism Status Change | Mechanism status has been changed |
| 0 | 3 | Track Status Changes | Track number or EOM status has been changed |

**5-28. ERROR SENSE RETURN**

Transmitted in response to an ERROR SENSE command [78], giving the specific error that has occurred.

    Command              F8
    Data                  4 bytes
    Request command  ERROR SENSE [78]

| Data 1 | N2 | Error code（N1-N2N3） | |
|--------|-----|--------------------|--|
| **Data 2** | N3 | 1-01 | TOC Read Error |
| **Data 3** | 0 | 1-02 | GFS Error |
| **Data 4** | N1 | 1-03 | Focus servo Error |
| | | 1-04 | Sub Q Reading Error |
| | | 1-05 | Disk loading Error |
| | | 1-06 | Sled Error |
| | | 1-10 | SDRAM check Error |
| | | 1-13 | System Error |

**\*\*\* Your unit must be version V1.02 for these commands to be supported.**

(for update instructions please visit www.tascam.com)

           TEAC Corporation