



## Introduction

This specification provides the communication protocol that allows two-way communication between an RS-232 enabled controller and an Apple® iPod™ docked into an RS-232 enabled iPort™ model. This document specifies telegrams that will allow for the command and control of the docked iPod in extended interface mode and for receiving meta data from the iPod for display on the controller's display.

## Applicable iPort Models

This specification only applies to iPort models that are two-way communication enabled. Two-way communication is enabled in the IW-4 and IW-5 systems, and can be added to iPort IW-2 and IW-3 systems by adding the iPort RS-232 Upgrade Kit (sold separately) to the IW-3, and the iPort RS-232 and the iPort Balanced Audio Upgrade kits (both sold separately) to the IW-2.

## Summary of RS-232 Operation

This communication protocol is enabled when the iPod is in extended interface mode, which can be determined by checking the iPod screen. The iPort logo will be on the iPod screen when in extended interface mode.

*NOTE: The iPod interface is disabled when in two-way (RS-232) mode. The user will no longer be able to control the iPod from the iPod when in two-way mode.*

There are commands to enter two way and exit two way. One may wish to make these commands available to the customer through the user interface. Refer to section 35 and section 36.

*NOTE: If the iPod is docked while in the Play mode it will automatically enter the Pause mode. This is due to the iPod protocol. You may wish to set the RS-232 control system to automatically send a Play command to return the iPod to the last playing song when it is inserted in the dock.*

## Connection Description

The iPort communication protocol uses an RJ-11 connector on the Balanced Audio Wallplate or external break-out box. (A compatible RJ-11/DB-9 cable is supplied with RS-232 enabled iPort systems and the iPort RS-232 Upgrade Kit.)

The pin assignments for the RS-232 cable are:

RJ-11 Pin	DB-9	Name
1	2	PC Rx
2*	5	GND
3*	5	GND
4	3	PC Tx
5	2	PC Rx
6		N/A

\* Only one GND pin may be connected, if desired.

## Com Port Settings:

Baud Rate = 19200

Parity = N

Stop Bits = 1

Data Bits = 8

## Packet Structure

The iPort communication packet structure is constructed using a combination of ASCII characters and hex data. A packet consists of seven elements described below.

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0xNN	Packet Length High Byte
0x03	0xNN	Packet Length Low Byte
0x04	0xNN	Packet Command Type
0x05	0xNN	Packet Command High Byte
0x06	0xNN	Packet Command Low Byte
0x07 – 0xNN	0xNN	Packet Data Bytes
0xNN	0xNN	Checksum = 2's compliment of the sum of all bytes excluding the start character and checksum

## Packet Command Type:

Code	Command Type
0x38	Two-Way
0x3C	General
0x01*	LED control

\* Device type code for this command is 0x4D



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## Command Code Summary

The table below lists the valid command codes for use in packet command high and low bytes for the Two-Way command type:

### PACKET COMMAND TYPE: 0x38

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x04	SelectSortDBRecord
0x3C	0x09	GetNumPlayingSongs
0x3C	0x0A	ReturnNumPlayingSongs
0x3C	0x0B	SetCurrentPlayingSong
0x3C	0x0C	ReturnRepeat
0x3C	0x0D	SetRepeat
0x3C	0x10	GetShuffle
0x3C	0x11	ReturnShuffle
0x3C	0x12	SetShuffle
0x3C	0x13	GetRepeat
0x3C	0x14	PlayCurrentSelection
0x3C	0x15	PlayControl
0x3C	0x18	GetIndexedPlayingSongAlbumName
0x3C	0x19	ReturnIndexedPlayingSongAlbumName
0x3C	0x1A	SetPlayStatusChangeNotification
0x3C	0x1B	PlayStatusChangeNotification
0x3C	0x1C	GetIndexedPlayingSongTitle
0x3C	0x1D	ReturnIndexedPlayingSongTitle
0x3C	0x1E	GetIndexedPlayingSongArtistName
0x3C	0x1F	ReturnIndexedPlayingSongArtistName
0x3C	0x20	GetPlayStatus
0x3C	0x21	ReturnPlayStatus
0x3C	0x22	GetCurrentPlayingSongIndex
0x3C	0x23	ReturnCurrentPlayingSongIndex
0x3C	0x24	GetNumberCategorizedDBRecords
0x3C	0x25	ReturnNumberCategorizedDBRecords
0x3C	0x26	RetrieveCategorizedDBRecords
0x3C	0x27	ReturnCategorizedDBRecord
0x3C	0x28	RequestiPodName
0x3C	0x29	ReturniPodName
0x3C	0x2A	ResetDBSelection
0x3C	0x2B	SelectDBRecord
0x3C	0x3D	Acknowledge

The table below lists the valid command codes for use in packet command high and low bytes for the General command type:

### PACKET COMMAND TYPE: 0x3C

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x38	ReturnRemoteUIMode
0x3C	0x39	EnterRemoteUIMode
0x3C	0x3A	ExitRemoteUIMode
0x3C	0x3E	Acknowledge
0x3C	0x3F	RequestRemoteUIMode

The table below lists the valid command codes for use in packet command high and low bytes for adjusting the LED:

### DEVICE TYPE: 0x4D / PACKET COMMAND TYPE: 0x01

iPort Command High Byte	iPort Command Low Byte	Command
0x00	0x01	LED_ON/OFF_Docked
0x00	0x02	LED_ON/OFF_Undocked
0x00	0x03	LED_Brightness_Docked
0x00	0x04	LED_Brightness_Undocked



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## Application Usage Example

The following table is an example of telegram traffic between the iPort and the controller:

<b>Sent from Controller</b>	<b>Sent from iPort</b>
RequestiPodName	ReturniPodName ("My iPod")
ResetDBSelection	Acknowledge
SelectDBRecord (Category = Artist, Index = 1)	Acknowledge
GetNumber CategorizedDBRecords (Category = Songs)	ReturnNumber CategorizedDBRecords (Matching Record Count = 2)
Retrieve CategorizedDBRecords (Category = Songs, Index = 1, Read Count = 2)	ReturnCategorizedDBRecord "Zooropa"
	ReturnCategorizedDBRecord "Babyface"
[User selects "Zooropa"]	
SelectDBRecords (Category = Songs, Index = 0)	Acknowledge
PlayCurrentSelection (Index = 0)	Acknowledge

## Command Code Description

The following section describes the individual iPort commands and includes the packet structure for each command.

### PACKET COMMAND TYPE: 0x38

#### 1. SelectSortDBRecord

<b>iPort Command High Byte</b>	<b>iPort Command Low Byte</b>	<b>Command</b>
0x3C	0x04	SelectSortDBRecord

Direction: Controller → iPort

Description: Selects one or more records in the iPod database based on a category type, index, and sort order.

#### Category Type Code:

<b>Code</b>	<b>Category Type</b>
0x01	Playlist
0x02	Artist
0x03	Album
0x04	Genre
0x05	Song
0x06	Composer

#### Sort Order Code:

<b>Code</b>	<b>Sort Order</b>
0x00	Genre
0x01	Artist
0x02	Composer
0x03	Album
0x04	Song
0x05	Playlist
0xFF	Default

#### Packet structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x09	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x04	Packet Command Low Byte
0x07	0xNN	Category Type Code
0x08	0xNN	Record Index (byte 4)
0x09	0xNN	Record Index (byte 3)
0x0A	0xNN	Record Index (byte 2)
0x0B	0xNN	Record Index (byte 1)
0x0C	0xNN	Sort Order Code
0x0D	0xNN	Checksum

#### 2. GetNumPlayingSongs

<b>iPort Command High Byte</b>	<b>iPort Command Low Byte</b>	<b>Command</b>
0x3C	0x09	GetNumPlayingSongs

Direction: Controller → iPort

Description: Requests the number of tracks in the actual list of songs queued. In response the iPort will send a *ReturnNumPlayingSongs* packet with the count of the songs queued to play.

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x03	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x09	Packet Command Low Byte
0x07	0x37	Checksum

**3. ReturnNumPlayingSongs**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x0A	ReturnNumPlayigSongs

Direction: iPort → Controller

Description: In response to *GetNumPlayingSongs* the return packet will include the count of the songs queued to play.

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x07	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x0A	Packet Command Low Byte
0x07	0xNN	Number of tracks (byte 4)
0x08	0xNN	Number of tracks (byte 3)
0x09	0xNN	Number of tracks (byte 2)
0x0A	0xNN	Number of tracks (byte 1)
0x0B	0xNN	Checksum

**4. SetCurrentPlayingSong**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x0B	SetCurrentPlayingSong

Direction: Controller → iPort

Description: Sets the index of the track that needs to be playing in the now playing playlist on the iPod. The index that is specified is obtained by sending the *GetNumPlayingSongs* and *GetCurrentPlayingSong Index* commands to obtain the number of playing songs and current playing song index respectively.

*NOTE: This command is only usable when the iPod is in a playing or paused state. The command will fail if the iPod is stopped.*

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x07	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x0B	Packet Command Low Byte
0x07	0xNN	New Current Playing Song Index (byte 4)
0x08	0xNN	New Current Playing Song Index (byte 3)
0x09	0xNN	New Current Playing Song Index (byte 2)
0x0A	0xNN	New Current Playing Song Index (byte 1)
0x0B	0xNN	Checksum

**5. ReturnRepeat**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x0C	ReturnRepeat

Direction: iPort → Controller

Description: In response to the *GetRepeat* command the current iPod track repeat mode state is returned.

**Repeat Mode Code:**

Code	Category Type
0x00	Repeat Off
0x01	Repeat One Track
0x02	Repeat All

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x0C	Packet Command Low Byte
0x07	0xNN	Repeat Mode Code
0x08	0xNN	Checksum

## 6. SetRepeat

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x0D	SetRepeat

Direction: Controller → iPort

Description: Sets the repeat state of the iPod. The repeat mode codes are listed in the ReturnRepeat command code description.

### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x0D	Packet Command Low Byte
0x07	0xNN	Repeat Mode Code
0x08	0xNN	Checksum

## 7. GetShuffle

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x10	GetShuffle

Direction: Controller → iPort

Description: Requests the current iPod shuffle mode state.

### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x03	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x10	Packet Command Low Byte
0x07	0x30	Checksum

## 8. ReturnShuffle

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x11	ReturnShuffle

Direction: iPort → Controller

Description: In response to the *GetShuffle* command the current iPod shuffle mode state is returned.

### Shuffle Mode Code:

Code	Category Type
0x00	Shuffle Off
0x01	Shuffle Songs
0x02	Shuffle Albums

### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x11	Packet Command Low Byte
0x07	0xNN	Shuffle Mode Code
0x08	0xNN	Checksum

## 9. SetShuffle

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x12	SetShuffle

Direction: Controller → iPort

Description: Sets the shuffle mode state of the iPod. The shuffle mode codes are listed in the *ReturnShuffle* command code description.

### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x12	Packet Command Low Byte
0x07	0xNN	Shuffle Mode Code
0x08	0xNN	Checksum

### 10. GetRepeat

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x13	GetRepeat

Direction: Controller → iPort

Description: Requests the current iPod track repeat state.

#### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x03	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x13	Packet Command Low Byte
0x07	0x2D	Checksum

### 11. PlayCurrentSelection

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x14	PlayCurrentSelection

Direction: Controller → iPort

Description: Requests playback of the currently selected songs or list of songs. The currently selected songs will be placed in the now playing playlist. Finally, the song record index is passed to the iPod to play.

#### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x07	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x14	Packet Command Low Byte
0x08	0xNN	Selection Song Record Index (byte 4)
0x09	0xNN	Selection Song Record Index (byte 3)
0x0A	0xNN	Selection Song Record Index (byte 2)
0x0B	0xNN	Selection Song Record Index (byte 1)
0x0C	0xNN	Checksum

### 12. PlayControl

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x15	PlayControl

Direction: Controller → iPort

Description: Sets the new play state of the iPod.

#### Play Control Command Code:

Code	Category Type
0x01	Toggle Play/Pause
0x02	Stop
0x03	Next Track
0x04	Previous Track
0x05	StartFF
0x06	StartRew
0x07	EndFFRew

#### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x15	Packet Command Low Byte
0x07	0xNN	Play Control Command Code
0x08	0xNN	Checksum

### 13. GetIndexedPlayingSongAlbumName

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x18	GetIndexedPlayingSongAlbumName

Direction: Controller → iPort

Description: Requests the album name of the indexed playing song from the iPod.

*NOTE: iPod will respond with an ACK including the specific error status if the received command length or playing song index is invalid.*



**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x07	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x18	Packet Command Low Byte
0x08	0xNN	Database Song Record Index (byte 4)
0x09	0xNN	Database Song Record Index (byte 3)
0x0A	0xNN	Database Song Record Index (byte 2)
0x0B	0xNN	Database Song Record Index (byte 1)
0x0C	0xNN	Checksum

**14. ReturnIndexedPlayingSongAlbumName**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x19	ReturnIndexedPlayingSongAlbumName

Direction: iPort → Controller

Description: In response to the *GetIndexedPlayingSongAlbumName* command, returns the album name of the indexed playing song.

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0xNN	Packet Length High Byte
0x03	0xNN	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x19	Packet Command Low Byte
0x07 – 0xNN	0xNN	Album Name in ASCII
0xNN	0xNN	Checksum

**15. SetPlayStatusChangeNotification**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x1A	SetPlayStatusChangeNotification

Direction: Controller → iPort

Description: Sets the play status change notification from the iPod. Notification of play status changes can be globally enabled or disabled. If enabled, the iPod will continue to send *PlayStatusChangeNotificaion* telegrams until this telegram is sent (again) with the disable notification option.

**Play Status Change Notification Mode Code:**

Code	Category Type
0x00	Disable All
0x01	Enable All

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x1A	Packet Command Low Byte
0x08	0xNN	Play Status Change Notification Code
0x09	0xNN	Checksum

**16. PlayStatusChangeNotification**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x1B	PlayStatusChangeNotification

Direction: iPort → Controller

Description: When the Play Status Change Notifications is enabled on the iPod using the *SetPlayStatusChangeNotification* command, the iPod will send this command with details about the new play status when there is a change. Notification telegrams for song position will occur approximately every 500 milliseconds while the iPod is playing. Notification telegrams will be sent from the iPod until the Play Status Change Notifications is disabled.

**Play Status Change Code:**

Code	Category Type
0x00	Playback Stopped
0x01	Playback Song Changed
0x02	Playback Forward Seek Stop
0x03	Playback Backward Seek Stop
0x04	Playback Song Position

**Packet Structure:**

Playback Stopped (0x00)		
Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x1B	Packet Command Low Byte
0x08	0x00	New Status: Playback Stopped
0x09	0x24	Checksum

Playback Song Changed (0x01)		
Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x08	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x1B	Packet Command Low Byte
0x07	0x01	New Status: Playback Song Changed
0x08	0xNN	New Database Song Record Index (byte 4)
0x09	0xNN	New Database Song Record Index (byte 3)
0x0A	0xNN	New Database Song Record Index (byte 2)
0x0B	0xNN	New Database Song Record Index (byte 1)
0x0C	0xNN	Checksum

Playback Forward Seek Stop (0x02)		
Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x1B	Packet Command Low Byte
0x08	0x02	New Status: Playback Forward Seek Stop
0x09	0x22	Checksum

Playback Backward Seek Stop (0x03)		
Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x1B	Packet Command Low Byte
0x08	0x03	New Status: Playback Backward Seek Stop
0x09	0x21	Checksum

Playback Song Position Changed (0x04)		
Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x08	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x1B	Packet Command Low Byte
0x07	0x04	New Status: Playback Song Position Changed
0x08	0xNN	New Database Song Record Index (byte 4)
0x09	0xNN	New Database Song Record Index (byte 3)
0x0A	0xNN	New Database Song Record Index (byte 2)
0x0B	0xNN	New Database Song Record Index (byte 1)
0x0C	0xNN	Checksum

**17. GetIndexedPlayingSongTitle**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x1C	GetIndexedPlayingSongTitle

Direction: Controller —> iPort

Description: Requests the song title of the indexed playing song from the iPod.

*NOTE: iPod will respond with an ACK including the specific error status if the received command length or playing song index is invalid.*



**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x07	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x1C	Packet Command Low Byte
0x08	0xNN	Database Song Record Index (byte 4)
0x09	0xNN	Database Song Record Index (byte 3)
0x0A	0xNN	Database Song Record Index (byte 2)
0x0B	0xNN	Database Song Record Index (byte 1)
0x0C	0xNN	Checksum

**18. ReturnIndexedPlayingSongTitle**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x1D	ReturnIndexedPlayingSongTitle

Direction: iPort → Controller

Description: In response to the *GetIndexedPlayingSongTitle* command, returns the song title of the indexed playing song.

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0xNN	Packet Length High Byte
0x03	0xNN	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x1D	Packet Command Low Byte
0x07 – 0xNN	0xNN	Song Title in ASCII
0xNN	0xNN	Checksum

**19. GetIndexedPlayingSongArtistName**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x1E	GetIndexedPlayingSongArtistName

Direction: Controller → iPort

Description: Requests the artist name of the indexed playing song from the iPod.

*NOTE: iPod will respond with an ACK including the specific error status if the received command length or playing song index is invalid.*

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x07	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x1E	Packet Command Low Byte
0x08	0xNN	Database Song Record Index (byte 4)
0x09	0xNN	Database Song Record Index (byte 3)
0x0A	0xNN	Database Song Record Index (byte 2)
0x0B	0xNN	Database Song Record Index (byte 1)
0x0C	0xNN	Checksum

**20. ReturnIndexedPlayingSongArtistName**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x1F	ReturnIndexedPlayingSongArtistName

Direction: iPort → Controller

Description: In response to the *GetIndexedPlayingSongArtistName* command, returns the artist name of the indexed playing song.

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0xNN	Packet Length High Byte
0x03	0xNN	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x1F	Packet Command Low Byte
0x07 – 0xNN	0xNN	Song Title in ASCII
0xNN	0xNN	Checksum

**21. GetPlayStatus**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x20	GetPlayStatus

Direction: Controller → iPort

Description: Requests the current iPod playback status allowing the controller to display information to the user.

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x03	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x20	Packet Command Low Byte
0x07	0x20	Checksum

**22. ReturnPlayStatus**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x21	ReturnPlayStatus

Direction: iPort → Controller

Description: In response to the *GetPlayStatus* command, returns the current iPod playback status.

*NOTE: The song length/song position fields are only valid if the iPod is playing or paused.*

**Play State Code:**

Code	Sort Order
0x00	Stopped
0x01	Playing
0x02	Paused
0xFF	Error

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x0C	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x21	Packet Command Low Byte
0x07	0xNN	Song Length in milliseconds (byte 4)
0x08	0xNN	Song Length in milliseconds (byte 3)
0x09	0xNN	Song Length in milliseconds (byte 2)
0x0A	0xNN	Song Length in milliseconds (byte 1)
0x0B	0xNN	Song Position in milliseconds (byte 4)
0x0C	0xNN	Song Position in milliseconds (byte 3)
0x0D	0xNN	Song Position in milliseconds (byte 2)
0x0E	0xNN	Song Position in milliseconds (byte 1)
0x0F	0xNN	Player State Code
0x10	0xNN	Checksum

**23. GetCurrentPlayingSongIndex**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x22	GetCurrentPlayingSongIndex

Direction: Controller → iPort

Description: Requests the database index of the currently playing song.

*NOTE: The song index returned is only valid if the iPod is currently playing or paused a song.*

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x03	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x22	Packet Command Low Byte
0x07	0x1E	Checksum

**24. ReturnCurrentPlayingSongIndex**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x23	ReturnCurrentPlayingSongIndex

Direction: iPort → Controller

Description: In response to the *GetCurrentPlayingSongIndex* command, returns the database index of the current playing song. If there is no song playing/paused, an index of -1 will be returned.

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x07	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x23	Packet Command Low Byte
0x07	0xNN	Database Song Record Index (byte 4)
0x08	0xNN	Database Song Record Index (byte 3)
0x09	0xNN	Database Song Record Index (byte 2)
0x0A	0xNN	Database Song Record Index (byte 1)
0x0B	0xNN	Checksum

## 25. GetNumberedCategorizedDBRecords

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x24	GetNumberedCategorizedDBRecords

Direction: Controller → iPort

Description: Requests the number of records of a particular database category. Category type codes are described in the *SelectSortDBRecord* command code description section.

NOTE: The record count returned by this command depends on the database state before this command is sent. If the database has been reset (*ResetDBSelection*), then this command will return the total number of records for a given category. If this command is sent after one or more categories are selected, then the record count will be the subset of records that are members of all the categories selected prior to this command.

### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x24	Packet Command Low Byte
0x07	0xNN	Category Type Code
0x08	0xNN	Checksum

## 26. ReturnNumberedCategorizedDBRecords

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x25	ReturnNumberedCategorizedDBRecords

Direction: iPort → Controller

Description: In response to the *GetNumberedCategorizedDBRecords* command, returns the number of database records matching the specified database category. If no matching database records are found, a record count of zero will be returned.

### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x07	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x25	Packet Command Low Byte
0x07	0xNN	Database Record Count (byte 4)
0x08	0xNN	Database Record Count (byte 3)
0x09	0xNN	Database Record Count (byte 2)
0x0A	0xNN	Database Record Count (byte 1)
0x0B	0xNN	Checksum

## 27. RetrieveCategorizedDBRecords

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x26	RetrieveCategorizedDBRecords

Direction: Controller → iPort

Description: Retrieves one or more database records from the iPod based usually based on the results from the *GetNumberCategorizedDBRecords* query. Category type codes are described in the *SelectSortDBRecord* command code description section.

### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x0C	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x26	Packet Command Low Byte
0x07	0xNN	Category Type Code
0x08	0xNN	Database Record Start Index (byte 4)
0x09	0xNN	Database Record Start Index (byte 3)
0x0A	0xNN	Database Record Start Index (byte 2)
0x0B	0xNN	Database Record Start Index (byte 1)
0x0C	0xNN	Database Record Read Count (byte 4)
0x0D	0xNN	Database Record Read Count (byte 3)
0x0E	0xNN	Database Record Read Count (byte 2)
0x0F	0xNN	Database Record Read Count (byte 1)
0x10	0xNN	Checksum

## 28. ReturnCategorizedDBRecord

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x27	ReturnCategorizedDBRecords

Direction: iPort → Controller

Description: In response to the *RetrieveCategorizedDBRecords* command, returns information for a single database.

### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0xNN	Packet Length High Byte
0x03	0xNN	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x27	Packet Command Low Byte
0x07	0xNN	Database Record Category Index (byte 4)
0x08	0xNN	Database Record Category Index (byte 3)
0x09	0xNN	Database Record Category Index (byte 2)
0x0A	0xNN	Database Record Category Index (byte 1)
0x0B – 0xNN	0xNN	Database Record as ASCII
0xNN	0xNN	Checksum

## 29. RequestiPodName

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x28	RequestiPodName

Direction: Controller → iPort

Description: Requests the name of the user's iPod.

### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x03	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x28	Packet Command Low Byte
0x07	0x18	Checksum

## 30. ReturniPodName

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x29	ReturniPodName

Direction: iPort → Controller

Description: In response to the *RequestiPodName* command, returns the name of the user's iPod.

*NOTE: If the iPod name is undefined will return "iPod."*

### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0xNN	Packet Length High Byte
0x03	0xNN	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x29	Packet Command Low Byte
0x07 – 0xNN	0xNN	iPod Name in ASCII
0xNN	0xNN	Checksum

## 31. ResetDBSelection

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x2A	ResetDBSelection

Direction: Controller → iPort

Description: Resets the current database selection to an empty state.

### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x03	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x2A	Packet Command Low Byte
0x07	0x16	Checksum

### 32. SelectDBRecord

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x2B	SelectDBRecord

Direction: Controller —> iPort

Description: Selects one or more records in the iPod database based on a category relative index. Selections are additive and limited only by the category hierarchy.

#### Category Type Code:

Code	Category Type
0x01	Playlist
0x02	Artist
0x03	Album
0x04	Genre
0x05	Song
0x06	Composer

#### Packet structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x08	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x2B	Packet Command Low Byte
0x07	0xNN	Category Type Code
0x08	0xNN	Database Record Index (byte 4)
0x09	0xNN	Database Record Index (byte 3)
0x0A	0xNN	Database Record Index (byte 2)
0x0B	0xNN	Database Record Index (byte 1)
0x0C	0xNN	Checksum

### 33. Acknowledge

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x3D	Acknowledge

Direction: iPort —> Controller

Description: This telegram acknowledges the receipt of a command received and returns the command status.

#### Command Result Status Code:

Code	Category Type
0x00	Success (OK)
0x01	Error: Unknown Database Category
0x02	Error: Command Failed
0x03	Error: Out of Resources
0x04	Error: Bad Parameter
0x05	Error: Unknown ID

#### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x06	Packet Length Low Byte
0x04	0x38	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x3D	Packet Command Low Byte
0x07	0xNN	Command Result Status Code
0x08	0xNN	Command High Byte being ACK'd
0x09	0xNN	Command Low Byte being ACK'd
0x1A	0xNN	Checksum

## PACKET COMMAND TYPE: 0x3C

### 34. ReturnRemoteUIMode

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x38	ReturnRemoteUIMode

Direction: iPort → Controller

Description: In response to the *RequestRemoteUIMode* command, returns the state of the iPod UI mode.

#### UI Mode Code:

Code	Category Type
0x00	Two-Way Mode
0x01	Standard Mode

#### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x3C	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x38	Packet Command Low Byte
0x07	0xNN	UI Mode Code
0x08	0xNN	Checksum

### 35. EnterRemoteUIMode

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x39	EnterRemoteUIMode

Direction: Controller → iPort

Description: Command to force the iPod to enter two-way communication mode.

#### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x03	Packet Length Low Byte
0x04	0x3C	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x39	Packet Command Low Byte
0x07	0x03	Checksum

### 36. ExitRemoteUIMode

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x3A	ExitRemoteUIMode

Direction: Controller → iPort

Description: Command to force the iPod to exit two-way communication mode.

#### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x03	Packet Length Low Byte
0x04	0x3C	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x3A	Packet Command Low Byte
0x07	0x02	Checksum

### 37. Acknowledge

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x3E	Acknowledge

Direction: iPort → Controller

Description: This telegram acknowledges the receipt of a command and returns the command status.

#### Command Result Status Code:

Code	Category Type
0x00	Success (OK)
0x01	Error: Unknown Database Category
0x02	Error: Command Failed
0x03	Error: Out of Resources
0x04	Error: Bad Parameter
0x05	Error: Unknown ID



**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x06	Packet Length Low Byte
0x04	0x3C	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x3E	Packet Command Low Byte
0x07	0xNN	Command Result Status Code
0x08	0xNN	Command Low Byte being ACK'd
0x09	0xNN	Checksum

**38. RequestRemoteUIMode**

iPort Command High Byte	iPort Command Low Byte	Command
0x3C	0x3F	RequestRemoteUIMode

Direction: Controller → iPort

Description: Requests the iPod UI mode.

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x49	Device type (iPort)
0x02	0x00	Packet Length High Byte
0x03	0x03	Packet Length Low Byte
0x04	0x3C	Packet Command Type
0x05	0x3C	Packet Command High Byte
0x06	0x3F	Packet Command Low Byte
0x07	0xFE	Checksum

**DEVICE TYPE: 0x4D /**

**PACKET COMMAND TYPE: 0x01**

**39. LED\_ON/OFF\_Docked**

iPort Command High Byte	iPort Command Low Byte	Command
0x00	0x01	LED_ON/OFF_Docked

Direction: Controller → iPort

Description: Command to turn ON/OFF the LEDs when an iPod is docked into the iPort.

**LED Mode Code:**

Code	LED Mode
0x00	OFF
0x01	ON

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x4D	Device type (iPort Micro)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x01	Packet Command Type
0x05	0x00	Packet Command High Byte
0x06	0x01	Packet Command Low Byte
0x07	0xNN	LED Mode Code
0x08	0xNN	Checksum

**40. LED\_ON/OFF\_Undocked**

iPort Command High Byte	iPort Command Low Byte	Command
0x00	0x02	LED_ON/OFF_Undocked

Direction: Controller → iPort

Description: Command to turn ON/OFF the LEDs when an iPod is not docked into the iPort.

**LED Mode Code:**

Code	LED Mode
0x00	OFF
0x01	ON

**Packet Structure:**

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x4D	Device type (iPort Micro)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x01	Packet Command Type
0x05	0x00	Packet Command High Byte
0x06	0x02	Packet Command Low Byte
0x07	0xNN	LED Mode Code
0x08	0xNN	Checksum

### 41. LED\_Brightness\_Docked

iPort Command High Byte	iPort Command Low Byte	Command
0x00	0x03	LED_Brightness_Docked

Direction: Controller —> iPort

Description: Command to adjust the brightness of the LEDs when an iPod is docked into the iPort.

#### LED Brightness Mode Code:

Code	LED Brightness Mode
0x01	Dim
0x02	Medium
0x03	Bright

#### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x4D	Device type (iPort Micro)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x01	Packet Command Type
0x05	0x00	Packet Command High Byte
0x06	0x03	Packet Command Low Byte
0x07	0xNN	LED Brightness Mode Code
0x08	0xNN	Checksum

#### Packet Structure:

Byte Number	Value	Meaning
0x00	0x2A	Start character
0x01	0x4D	Device type (iPort Micro)
0x02	0x00	Packet Length High Byte
0x03	0x04	Packet Length Low Byte
0x04	0x01	Packet Command Type
0x05	0x00	Packet Command High Byte
0x06	0x04	Packet Command Low Byte
0x07	0xNN	LED Brightness Mode Code
0x08	0xNN	Checksum

### 42. LED\_Brightness\_Undocked

iPort Command High Byte	iPort Command Low Byte	Command
0x00	0x04	LED_Brightness_Undocked

Direction: Controller —> iPort

Description: Command to adjust the brightness of the LEDs when an iPod is not docked into the iPort.

#### LED Brightness Mode Code:

Code	LED Brightness Mode
0x01	Dim
0x02	Medium
0x03	Bright

Detailed Example

The following example is a *ReturniPodName* command response from the iPort in response to a *RequestiPodName* command.

**Sent from Controller**

RequestiPodName	
Value	Meaning
0x2A	Start character
0x49	Device type (iPort)
0x00	Packet Length High Byte
0x03	Packet Length Low Byte
0x38	Packet Command Type
0x3C	Packet Command High Byte
0x28	Packet Command Low Byte
0x18	Checksum

**Sent from iPort**

ReturniPodName ("My iPod")	
Value	Meaning
0x2A	Start character
0x49	Device type
0x00	Packet Length (H)
0x0A	Packet Length (L)
0x38	Command Type
0x3C	Packet Command (H)
0x29	Packet Command (L)
0x4D	ASCII "M"
0x79	ASCII "y"
0x20	ASCII space
0x69	ASCII "i"
0x50	ASCII "P"
0x6F	ASCII "o"
0x64	ASCII "d"
0x00	ASCII null
0x9E	Checksum



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