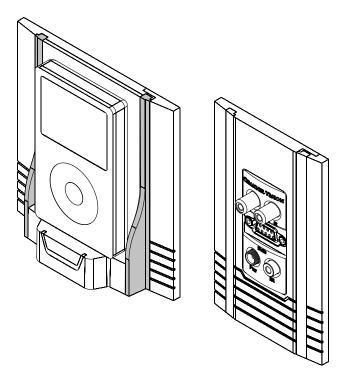
INSTRUCTIONS



AO316 iBus Wall-Dock for Distributed Audio with RS-232 Control

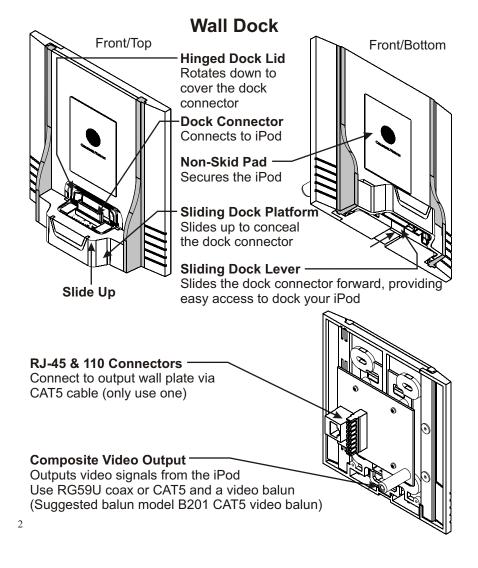




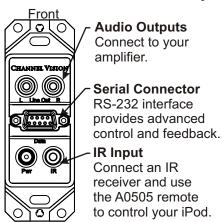
The **A0316** is an on-wall iPod® docking station that supports RS-232 and IR control. The dock connector slides in and out to adjust for any iPod and the non-skid pad helps to hold the music player in place. Its elegant and contemporary design make the A0316 perfect for anyone who wants to enjoy their music without defacing their wall.

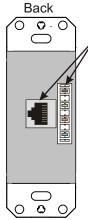
Features:

- Supports IR control: compatible with A0505 or Apple Remote
- RS-232 interface for use with advanced control systems
- Built-in IR receiver
- Charges the iPod
- Allows viewing of iPod videos on a TV
- Mounts in a standard 2-gang box

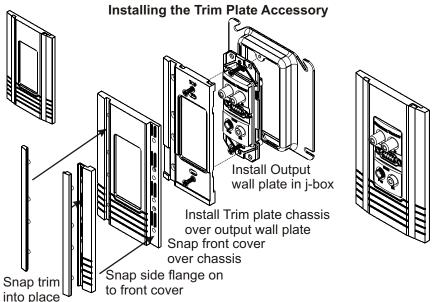


Output Wall Plate





RJ-45 & 110 Connectors Receive signals from the wall dock via Category 5 or Category 6 cable.



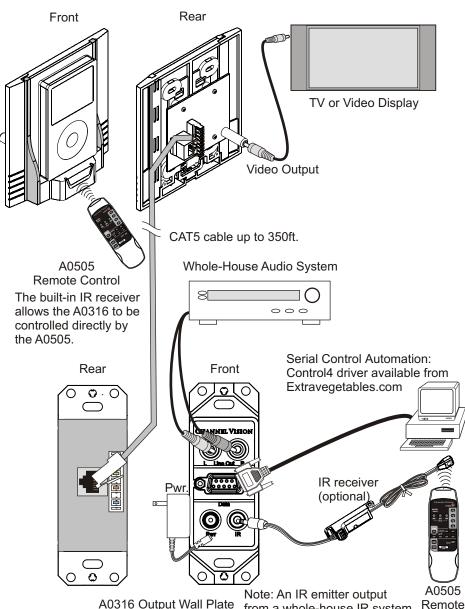
Compatibility

Made For:

- iPod touch (2nd generation)
- IPod touch (1st generation)
- iPod classic
- iPod video
- iPod nano (5th generation)
- iPod nano (4th generation)
- iPod nano (3rd generation)
- iPod nano (2nd generation)
- iPod nano (1st generation)
- iPod mini
- iPod with dock connector

Basic Application

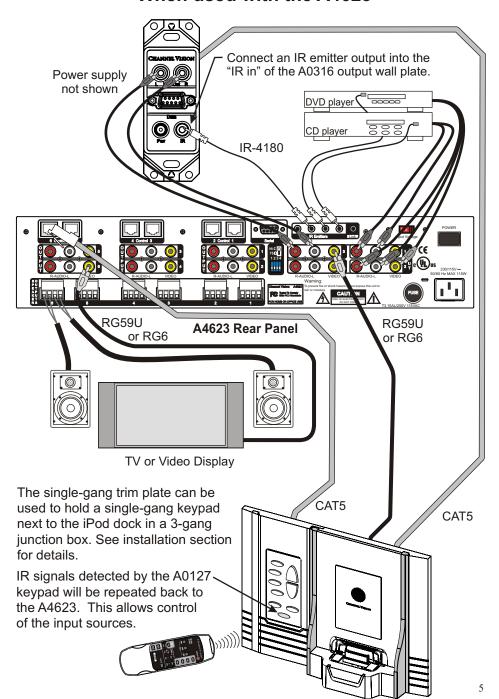
A0316 Wall Dock



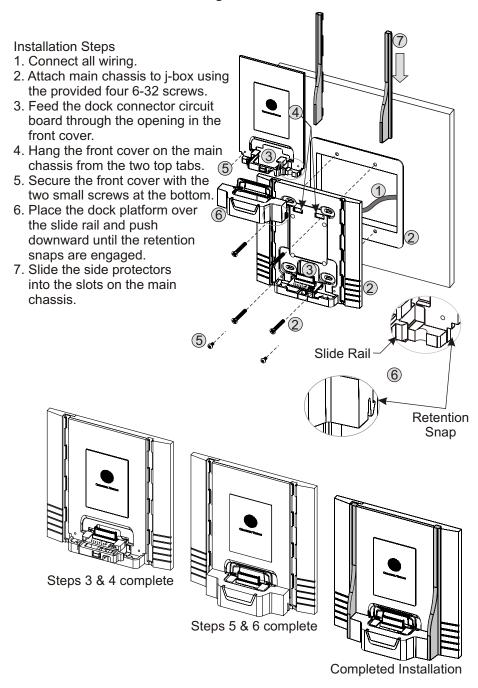
A0316 Output Wall Plate

Note: An IR emitter output from a whole-house IR system can also be connected here. As shown on the following page.

Sample Wiring Diagram: When used with the A4623



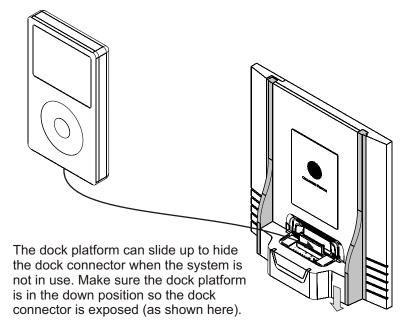
Installing the Wall Dock

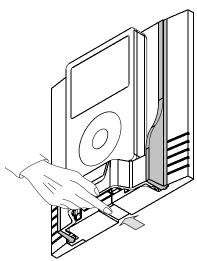


Installing the Wall Dock

In some installations it may be desirable to mount a single gang control keypad next to the A0316. To accomplish this, the single gang trim plate can be installed next to the A0316 in a 3-gang junction box. Follow the steps below: Installation Steps 1. Connect all wiring. Use the correct installation tools: J-110 tool, or 1014 crimp tool. 2. Install keypad and single-gang trim plate in the far left position of the 3-gang junction box. (See details on page 3) 3. Leave off the right side flange and trim piece. 4. Install the iPod dock in the left side of the 3-gang j-box. It will overlap and snap into the single gang trim plate. (See page 5 for details) See attachment(detail on previous page Completed Installation

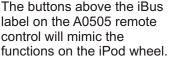
Docking the iPod



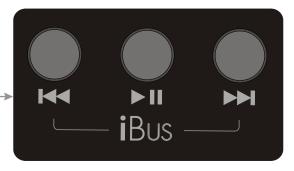


The sliding dock lever beneath the dock adjusts the position of the dock connector to create a perfect fit for all compatible iPods (see page 3 for a list of compatible iPods).

Using the A0505 Remote Control







The volume, mute, power, and source buttons on the A0505 are designed to control Channel Vision's whole-house audio systems such as the A4603 and P-1044.

Please note that this remote will only function when your iPod is docked in the A0316 wall dock. It can be pointed directly at the wall dock or at an IR receiver that is part of an external whole-house IR system. An IR-4180 cable can be used to connect the emitter output of the whole-house IR system into the IR IN of the A0316 output wall plate. See page 5 of this manual for an example.

We realize that custom integrators way wish to design advanced control systems. To provide assistance we have published the hex codes for the IR commands (see below). (IR codes can be downloaded at: www.channelvision.com)

Hex codes for IR commands:

iBus Play/Pause:

iBus Skip <<:

iBus Skip >>:

RS-232 Control Code:

For more complex installations, the A0316 supports RS-232 making it well suited for use with automation systems. Baud Rate: 57600, 8N1 (8-Bit Data, No Parity, 1 Stop Bit)

The **checksum** is calculated by adding the bytes together as signed 8-bit values, discarding any signed 8-bit overflow, and then negating the sum to create the signed 8-bit checksum byte.

When calculating the checksum of iPod responses, the sum of all the bytes from the packet payload length to and including the packet payload checksum is 0x00.

When calculating the checksum of commands issued to the iPod, the sum of ALL bytes, including the "A36" prefix, as well as the checksum is 0x00.

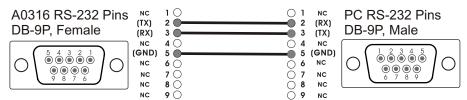
Responses in the Special Lingo are also calculated in this way.

NOTE: to issue commands without calculating a checksum, you can use the ASCII lowercase 'z' (0x7A) as a wildcard checksum value.

There are two possible responses generated when a command is received:

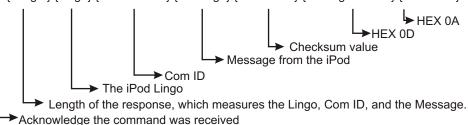
- This acknowledges that the command was received and it had a valid check sum.
- ZZZ This means that the command was not understood or could not be decoded correctly. It could also mean that the check sum was not valid.

Serial Cable Pin Out



The format of responses is as follows:

 $\# \left\{ Length \right\} \left\{ CommandID \right\} \left\{ Message \right\} \left\{ Checksum \right\} \left\{ Carriage \ Return \right\} \left\{ Line \ Feed \right\}$



Message Payloads are shown in italics: 1 2 3 4 5 ... followed by [cs] = Check Sum All understood commands will elicit a '#' (0x23) acknowlegement, which is not shown in the tables below. Other commands will also elicit an additional response in the form of a "Return" command.

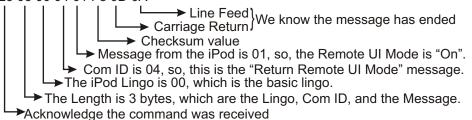
Note: The gray sections in the following tables denote responses from the iPod or iPod dock. The Special Lingo contains special messages and errors indications to provide useful status information.

	Com ID	Notification Messages	ASCII Message	Hex Message
(0x21)	0x20 [Is iPod Connected?	A361[sp][cs]	41 33 36 31 20 05
	0x21	iPod Removed/Not Connected	A361![cs]	41 33 36 31 21 04
-ingo	0x22	iPod Inserted/Connected	A361"[cs]	41 33 36 31 27 FE
Special I	0x23	Incompatible iPod (No Auth) (Automatic Response)	A361#[cs]	41 33 36 31 23 02
	0x24	Not in Extended Mode (Automatic Response)	A361\$[cs]	41 33 36 31 24 01
	0x25	NACK (repeat command) (Automatic Response)	A361%[cs]	41 33 36 31 25 00
	0x00	ACK of command received & executed by iPod	[non-ASCII values]	03 21 00 00 DC

	Com ID	Function/Question/Response	ASCII Com	Hex Com
(00x0)	0x03 [Request Remote UI Mode	A361&[cs]	41 33 36 31 26 FF
	0x04 L	Return Remote UI Mode	[non-ASCII values]	ON: 03 00 04 01 F8 0D 0A OFF: 03 00 04 00 F9 0D 0A
Lingo	0x05	Enter Remote UI Mode	A361'[cs]	41 33 36 31 27 FE
eral	0x06	Exit Remote UI Mode	A361([cs]	41 33 36 31 28 FD
General	0x07 F	Request iPod Name	A361)[cs]	41 33 36 31 29 FC
	0x08 L	Return iPod Name	[iPod data*]	[iPod data*]

^{*}All name data from the iPod (iPod name, song name, etc.) is transmitted as a null-terminated UTF-8 character array, so the presence of 0x00 marks the end of the name.

Parsing Example: Suppose we have Requested the Remote UI Mode and we want to understand the response. Assume the response (in Hex) was: 23 03 00 04 01 F8 0D 0A



The commands below are for simple transport control of the iPod. There is no reply from the iPod dock beyond the basic '#' acknowledgment.

<u>s</u>	Com ID	Function/Question	ASCII Command	Hex Command
Commands	0x00	Context Button Status, Stop	A3614[cs]	41 33 36 31 34 F1
	0x00	Context Button Status, Play/Resume	A3615[cs]	41 33 36 31 35 F0
	0x00	Context Button Status, Pause	A3616[cs]	41 33 36 31 36 EF
(0x02)	0x00	Context Button Status, Next Playlist	A3617[cs]	41 33 36 31 37 EE
	0x00	Context Button Status, Prev Playlist	A3618[cs]	41 33 36 31 38 ED
Remote Lingo	0x00	Context Button Status, Shuffle Advance (No shuffle, shuffle song, shuffle album)	A3619[cs]	41 33 36 31 39 EC
	0x00	Context Button Status, Repeat Advance (No repeat, Repeat one, Repeat all)	A361:[cs]	41 33 36 31 3A EB
Rer	0x00	Context Button Status, Begin FFW	A361;[cs]	41 33 36 31 3B EA
Simple	0x00	Context Button Status, Begin RRW	A361<[cs]	41 33 36 31 3C E9
Sin	0x00	Context Button Status, Play/Pause	A3611[cs]	41 33 36 31 31 F4
	0x00	Context Button Status, Next Track	A3612[cs]	41 33 36 31 32 F3
	0x00	Context Button Status, Prev Track	A3613[cs]	41 33 36 31 33 F2

You must Enter the Remote UI Mode before issuing any of the "Extended Interface Lingo" commands. If an Extended Interface command is issued when the system is not in Remote UI Mode, it will respond with the "Not in Extended Mode" response (See "Special Lingo" section).

Sp	Com ID	Function/Question	ASCII Command	Hex Command
Commands	0x000C	- Get Indexed Playing Track Info	A365Z 1 2 3 4 [cs]	41 33 36 35 5A <i>1 2 3</i> <i>4</i> [cs]
omi	0x000D	Return Indexed Playing Track Info	[iPod data]	[iPod data]
	0x000E	Get Artwork Formats	A361Y[cs]	41 33 36 31 59 CC
(0x04)	0x000F	Ret Artwork Formats	[iPod data]	[iPod data]
Lingo (0x0010	Get Track Artwork Data	A36;\1 2 3 4 5 6 7 8 9 10[cs]	41 33 36 3B 5C 1 2 3 4 5 6 7 8 9 10 [cs]
	0x0011 L	Ret Track Artwork Data	[iPod data]	[iPod data]
face	0x0016	Reset DB Selection	A361A[cs]	41 33 36 31 41 E4
Interface	0x0017	Select DB Record	A366B <i>1 2 3 4</i> <i>5</i> [cs]	41 33 36 36 42 1 2 3 4 5 [cs]
pep	0x0018	Get Number Categorized DB Records	A362C 1 [cs]	41 33 36 32 43 <i>1</i> [cs]
Extended	0x0019 L	Return Number Categorized DB Records	[iPod data]	[iPod data]
ш	0x001A	Retrieve Categorized Database Records	A36:D 1 2 3 4 5 6 7 8 9[cs]	41 33 36 3A 44 1 2 3 4 5 6 7 8 9 [cs]
	0x001B	Return Categorized Database Records	[iPod data]	[iPod data]

The Macro commands listed below simplify a multi-step process into a single command. They work as shortcuts to make programming easier.

gs	Com ID	Function/Question	ASCII Command	Hex Command
Commands	0x001C	Get Play Status	A361E[cs]	41 33 36 31 45 E0
omn	0x001D	Return Play Status	[iPod data]	[iPod data]
4) C	0x001E	- Get Current Playing Track Index	A365F 1 2 3 4 [cs]	41 33 36 35 46 1 2 3 4 [cs]
0×0	0x001F	Return Current Playing Track Index	[iPod data]	[iPod data]
Lingo (0x04)	0x0020	Get Indexed Playing Track Title	A365G 1 2 3 4 [cs]	41 33 36 35 47 1 2 3 4 [cs]
	0x0021	Return Indexed Playing Track Title	[iPod data]	[iPod data]
face	Macro L	Get Current Playing Track Title	A361a[cs]	41 33 36 31 61 C4
Extended Interface	0x0022	Get Indexed Playing Track Artist Name	A365H 1 2 3 4 [cs]	41 33 36 35 48 1 2 3 4 [cs]
l pap	0x0023	Get Indexed Playing Track Artist Name	[iPod data]	[iPod data]
tenc	Macro	_ Get Current Playing Track Artist Name	A361b[cs]	41 33 36 31 62 C3
EX	0x0024	Get Indexed Playing Track Album Name	A365I 1 2 3 4 [cs]	41 33 36 35 49 <i>1 2 3</i> 4 [cs]
	0x0025	Return Indexed Playing Track Album Name	[iPod data]	[iPod data]
	Macro	Get Current Playing Track Album Name	A361c[cs]	41 33 36 31 63 C2
	0x0026	Set Play Status Change Notification Notification Off Full Notification - updates every 500ms	A362J 1 [cs]	41 33 36 32 4A 1 [cs] 41 33 36 32 4A 00 DA 41 33 36 32 4A 01 D9
	0x0027	Play Status Change Notification	[iPod data]	[iPod data]
	0x0026	 Set Play Status Change Notification (Command only works on newer iPods) Notification Off Full Notification - updates every 500ms Limited Notification 	A3625D 1 [cs]	41 33 36 32 5D 1 [cs] 41 33 36 32 5D 00 C7 41 33 36 32 5D 01 C6 41 33 36 32 5D 02 C5
	Macro	Play 1st Playlist (Alphabetic order) Play 2nd Playlist (Alphabetic order) Play 3rd Playlist (Alphabetic order)	A361q[cs] A361r[cs] A361s[cs]	41 33 36 31 71 B4 41 33 36 31 72 B3 41 33 36 31 73 B2

Lingo	Com ID	Function/Question	ASCII Command	Hex Command
	0x0035	Get Num Playing Tracks	A361Q[cs]	41 33 36 31 51 D4
Interface nmands	0x0036 L	Return Num Playing Tracks	[iPod data]	[iPod data]
	0x0037	Sot Current Dlaving Track	A365R 1 2 3 4 [cs]	41 33 36 35 52 <i>1</i> 2 <i>3 4</i> [cs]
Extended (0x04) Co	0x0038	Select Sort DB Record	A367S 1 2 3 4 5 6 [cs]	41 33 36 37 53 <i>1 2 3 4 5 6</i> [cs]
xten 0x04				
ш 9				

	Com ID	Function/Question	ASCII Command	Hex Command
	0x0028	Play Current Selection	A365K 1 2 3 4 [cs]	41 33 36 35 4B <i>1 2 3 4</i> [cs]
spu	0x0029	Play Control	A362L 1 [cs]	41 33 36 32 4C <i>1</i> [cs]
Commands	0x002A	- Get Track Artwork Times	A367[1 2 3 4 5 6 [cs]	41 33 36 37 5B <i>1 2 3 4 5 6</i> [cs]
Con	0x002B	Return Track Artwork Times	[iPod data]	[iPod data]
04)	0x002C	Get Shuffle	A361M[cs]	41 33 36 31 4D D8
Interface Lingo (0x04)	0x002D	Return Shuffle	[non-ASCII values]	None: 04 04 00 2D 00 CB 0D 0A Song: 04 04 00 2D 01 CA 0D 0A Album: 04 04 00 2D 02 C9 0D 0A
	0x002E	Set Shuffle (00 = No shuffle, 01 = Song, 02 = Album)	A362N 1 [cs]	41 33 36 32 4E <i>1</i> [cs]
led	0x002F	Get Repeat	A361O[cs]	41 33 36 31 4F D6
Extended	0x0030	Return Repeat	[non-ASCII values]	None: 04 04 00 30 00 C8 0D 0A One: 04 04 00 30 01 C7 0D 0A All: 04 04 00 30 02 C6 0D 0A
	0x0031	Set Repeat (00 = No repeat, 01 = One, 02 = All)	A362P 1 [cs]	41 33 36 32 50 <i>1</i> [cs]

Non-Essential Commands

Commands	Com ID		Function/Question	ASCII Command	Hex Command
	0x0F	П	Request Lingo Protocol Version	A362+ 1 [cs]	41 33 36 32 2B <i>1</i> [cs]
Con	0x10	Ļ	Return Lingo Protocol Version	[iPod data]	[iPod data]
(00x0)	0x09	П	Request iPod Software Version	A361,[cs]	41 33 36 31 2C F9
ingo (0x	0x0A	Ļ	Return iPod Software Version	[iPod data]	[iPod data]
	0x0D	П	Request iPod Model Num	A361*[cs]	41 33 36 31 2A FB
	0x0E	Ļ	Return iPod Model Num	[iPod data]	[iPod data]
0x02	0x00		Context Button Status, All Up	A3610[cs]	41 33 36 31 30 F5

Example:

The following example describes how to guery the iPod database.

There are several database categories that can be queried.

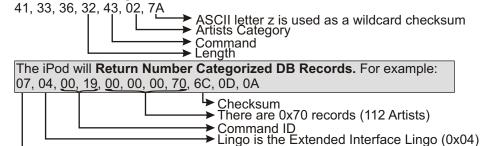
Category	(HEX Number)
Playlist	(01)
Artists	(02)
Albums	(03)
Genres	(04)
Tracks	(05)

All numbers are HEX values.

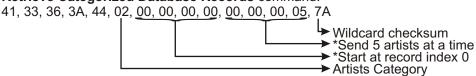
Note: commands begin with ASCII A36, which converts to HEX: 41 33 36 The database must be reset prior to a query. Use **Reset DB Selection**: 41 33 36 31 41 E4

Ask how many artists records there are by using the

Get Number Categorized DB Records command.



Get 5 database records for artists starting at record index 0, by using the **Retrieve Categorized Database Records** command.



➤ Length is 7 bytes (excluding checksum and end markers)

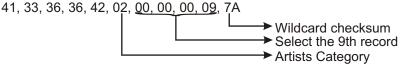
*The commas separate bytes so the largest valid decimal number will be 255 (or HEX FF). 4 bytes are reserved for the record index and 4 bytes are reserved for the number of Artists requested in each transmission. For numbers exceeding 255 (HEX FF), use the preceding (more significant) byte. Examples:

00, 00, 00, 05 = There are 5 records

00, 00, 00, FF = There are 255 records

00, 00, 01, 01 = There are 257 records

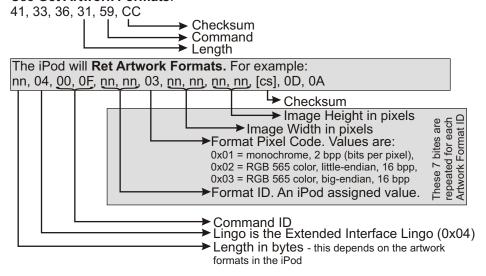
To select the 9th record in the Artists database, use: Select DB Record



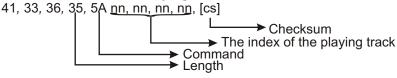
Obtaining Artwork

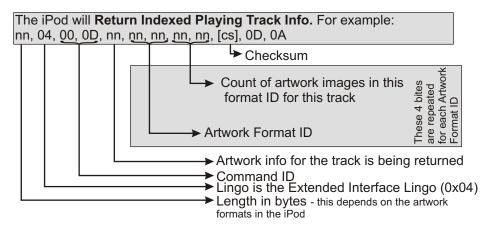
All numbers are HEX values.

Note: commands begin with ASCII A36, which converts to HEX: 41, 33, 36 nn is used as a place holder for unknown bytes shown in the example below. Use **Get Artwork Formats**:



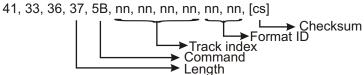
Next, use **Get Indexed Playing Track Info**:

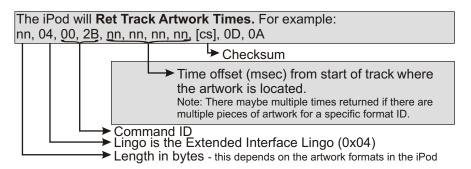




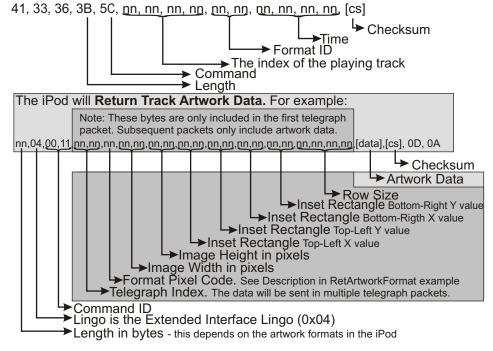
Obtaining Artwork (continued)

Use Get Track Artwork Times:









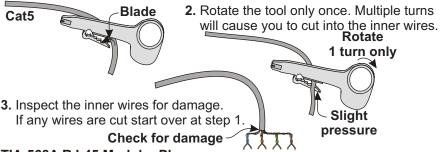
Connection Tips and Troubleshooting

- 1) Be sure you have connected the CAT-5 cable correctly. Follow the TIA-568A standard at both ends. Incorrect wiring can cause distorted sound or prevent the system from working at all!
- 2) Be sure you have connected the speakers in phase. Follow the label on the product. Out of phase speakers can rob the system of its bass. Especially when driving dual-voice-coil speakers.
- 3) Trouble with IR control?
- a. Make sure you are using the correct remote control. The A0316 will only respond to IR signals from the Apple Remote produced by Apple Computer or the A0505 produced by Channel Vision. Other 3rd party remote controls are not supported.
- b. Disconnect anything that is connected to the "IR IN" on the output wall plate. Point the A0505 remote at the Wall Dock and see if you can control the iPod. If this works, you need to troubleshoot your IR repeating system.
- c. Troubleshooting an external IR system: Some IR receivers have a feedback LED that flashes whenever IR signals are received. If the IR receiver you are using has this feature, check to make sure the LED flashes whenever you press buttons on your remote control.
 - i. If you don't see the feedback LED, try replacing the batteries in your remote control.
- 4) The A0316 is designed to charge the iPod (see compatibility notes on page3). When the iPod is not playing music, the screen should indicate that the iPod is being charged. If this does not occur, make sure the power supply is connected to the output wall plate of the A0316.
- 5) Observe wiring distance specifications. The maximum recommended wire length between the wall dock and output wall plate is 350 feet. Although the A0316 has been proven to work at distances of 500 feet, such extreme distances are not recommended because erratic performance may result due to the power loss caused by the CAT5 wire.
- 6) If you are experiencing problems with your iPod that occur even when it is not docked in the A0316, then please contact Apple customer service for support.
- 7) If you need additional help troubleshooting the A0316 please contact Channel Vision technical support or check our website for more details; www.channelvision.com.

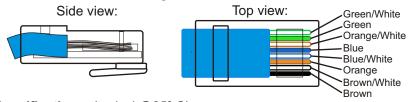
Stripping and Connecting CAT-5 Wire

CAT-5 cable should be stripped with a proper stripping tool, such as Channel Vision's J-110 tool.

1. Place the CAT-5 between the blade and the first notch of the J-110 tool.



TIA-568A RJ-45 Modular Plug



Specifications: (typical @25° C)

Audio Output

Output Level: 0.9 Vrms (may vary with iPod model)

THD + Noise: <0.2%, 20Hz-20kHz

Signal/Noise: >-96dB

Frequency Response: 20Hz-20kHz +/- 0.3dB

Output Impedance: 600 Ohms

Power Requirements: 15VDC @ 0.500A (500mA)

Power Supply: 15VDC @ 850mA

Wire type: 4-pair, UTP Category 5, 5e or 6

Recommended Max. Cable Length: 350ft.

Video Output: 1 Vp-p (may vary with iPod model)

Video Type: Composite

RS-232 Protocol Standard: 8-bit data, No Parity, 1 stop bit

Baud Rate 57600

Serial Cable Specification: Straight through, pins 2, 3, & 5

Dimensions:

Wall Dock (2-gang): 4.88"W x 5.14"H x 1.24"D(front)

Rear Depth: 1.56"

Wall Dock & Keypad (3-gang): 6.73"W x 5.14"H x 1.24"D(front)

Rear Depth: 1.56"

Output Plate (1-gang): 3.15"W x 5.14"H x 1.24"D(front)

Rear Depth: 1.95"

Color: White

Operating Temperature: -10°C to +50°C

Specifications subject to change without notice.



1 Year Limited Warranty

Channel Vision Technology will repair or replace any defect in material or workmanship which occurs during normal use of this product with new or rebuilt parts, free of charge in the USA, for one year from the date of original purchase. This is a no hassle warranty with no mail in warranty card needed. This warranty does not cover damages in shipment, failures caused by other products not supplied by Channel Vision Technology, or failures due to accident, misuse, abuse, or alteration of the equipment. This warranty is extended only to the original purchaser, and a purchase receipt, invoice, or other proof of original purchase date will be required before warranty repairs are provided.

Mail in service can be obtained during the warranty period by calling (800) 840-0288 toll free. A Return Authorization number must be obtained in advance and can be marked on the outside of the shipping carton.

This warranty gives you specific legal rights and you may have other rights (which vary from state to state). If a problem with this product develops during or after the warranty period, please contact Channel Vision Technology, your dealer or any factory-authorized service center.

Channel Vision products are not intended for use in medical, lifesaving, life sustaining or critical environment applications. Channel Vision customers using or selling Channel Vision products for use in such applications do so at their own risk and agree to fully indemnify Channel Vision for any damages resulting from such improper use or sale.

"Made for iPod" means that an electronic accessory has been designed to connect specifically to iPod and has been certified by the developer to meet Apple performance standards.

Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards.

iPod is a trademark of Apple Inc., registered in the U.S. and other countries.



Model: A0316 iPod Wall Dock for Distributed Audio

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.



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