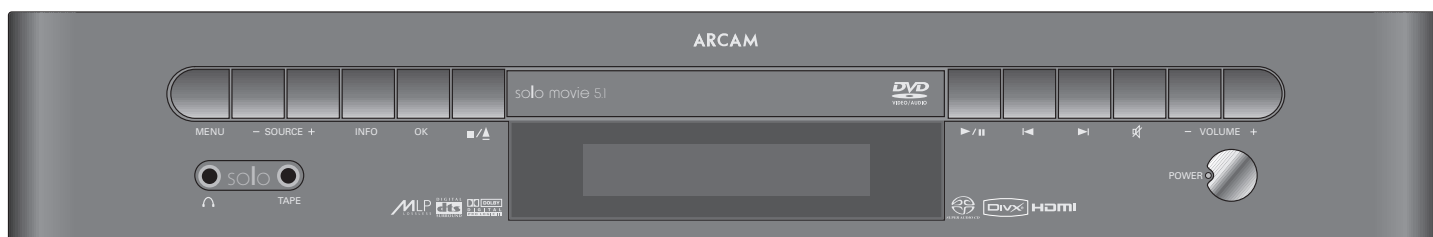
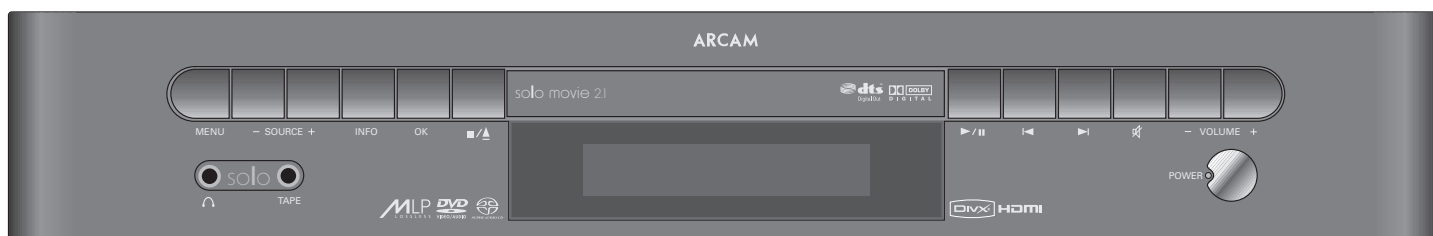


# ARCAM

## Custom Installation Notes: Serial programming interface and IR remote commands for Arcam Solo Movie 2.1 and 5.1



### Models covered:

**Solo Movie 2.1**  
**Solo Movie 5.1**

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# Applicability

## Publication reference

This is Arcam technical publication SH194, issue 2 (May 2007).

## Equipment covered

This publication applies to the following inversions of the software and RS232 protocol used by the models:

Model	RS232 protocol version	Software version
Solo Movie 2.1	1.5	2.7 onwards
Solo Movie 5.1	1.5	2.7 onwards

The latest version of this document is available on the Arcam Dealer extranet accessed via **[www.arcam.co.uk/extranet](http://www.arcam.co.uk/extranet)**

If you cannot yet access the Dealer extranet, please apply by email to [nadinec@arcam.co.uk](mailto:nadinec@arcam.co.uk)

# Controlling the Arcam Solo Movie via RS232

## Introduction

Solo Movie is fitted with an RS232 serial connector that allows remote control from a PC, or similar device. This section of the document describes the protocol for controlling Solo Movie 2.1 or 5.1 via the RS232 interface.

### Conventions

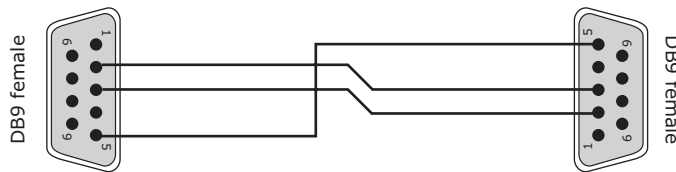
- The remote controller is referred to as the 'RC'.
- All values in this section are hexadecimal values, unless otherwise specified.

### Data transfer format

- Transfer rate: 38,400bps.
- 1 start bit, 8 data bits, 1 stop bit, no parity, no flow control.

---

## Serial cable specification



The cable is wired as a null modem:

Connector 1	Connector 2	Function
2	3	Rx ← Tx
3	2	Tx → Rx
5	5	RS232 ground

### Data transfer format

- Transfer rate: 19,200bps.
- 1 start bit, 8 data bits, 1 stop bit, no parity, no flow control.

---

## Command and response formats

Communication between the RC and Solo Movie takes the form of sequences of bytes, with all commands and responses having the same basic format. Communication between the two is full duplex. Solo Movie shall always respond to a received command.

Each transmission by the RC shall be at least six bytes in the following format:

<STR> <ZN> <CC> <NB> <Data> <ETR>

- STR (Start transmission): 0x21
- ZN (Zone)
- CC (Command code): the code for the command
- NB (Number of bytes): the number of data items following this item, excluding the ETR
- Data: [Byte(1) - Byte(NB)]
- ETR (End transmission): 0xD

Each response by Solo Movie shall be at least seven bytes in the following format:

<STR> <ZN> <CC> <RC> <NB> <Data> <ETR>

- STR (Start transmission): 0x21
- ZN (Zone)
- CC (Command code)
- RC (Reply code)
- NB (Number of bytes): the number of data items following this item, excluding the ETR
- Data: [Byte(1) - Byte(NB)]
- ETR (End transmission): 0xD

### Answer codes

The following answer codes are defined:

Status update	0x00
Command accepted, and complete	0x01
Command accepted, currently processing	0x02
Zone Invalid	0x82
Command not recognised	0x83
Parameter not recognised	0x84
Command invalid at this time	0x85
Invalid data length	0x86

Unless detailed otherwise, the data returned is valid only when the answer code is 'Status update' or 'Command accepted, and complete'. When 'Command accepted, currently processing' is returned, the data returned is the data which is currently being processed.

### Status changes

Note that Solo Movie shall transmit messages whenever its status changes. These messages shall be transmitted by Solo Movie at asynchronous intervals.

### State changes as a result of other inputs

It is possible that the state of Solo Movie may be changed as a result of user input via the front panel buttons or via the IR remote control. Changes resulting from these inputs shall be relayed to the RC (using the appropriate message type) as they occur.

For example, if the user changed the front panel display brightness using the **DISP** button on the remote control, a display message (defined below) would be sent to the RC. A similar action would be taken for all other state changes.

Unless stated, all RS232 commands have an associated status message.

---

## Example command and response sequence

As an example, the command to set the front-panel display of the Solo Movie to 'full brightness' (defined below) is as follows:

STR	Zone	CC	DL	Data	ETR
0x21	0x01	0x0A	0x01	0x04	0x0D

Assuming that the command was accepted by the DVD player and is being processed, the DVD player responds to this command with the following sequence:

STR	Zone	CC	AC	DL	Data	ETR
0x21	0x01	0x0A	0x02	0x01	0x04	0x0D

**Note: RS232 control is disabled if the iPod option is enabled.**

# RS232 commands

## Status

Query the current state of Solo Movie.

### Example

Command/response sequence to determine the current state (the unit is currently in stand-by):

*COMMAND: 0x21 0x01 0x00 0x01 0xF0 0x0D*

*RESPONSE: 0x21 0x01 0x00 0x01 0x01 0x00 0x0D*

Byte:	Description:
ZN	0x01 (Zone)
CC	0x00 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0x00 (Reply Code)
AC	0x01 (Answer code)
NB	0x01 (Number of bytes)
DATA	0x00 = Stand-by state 0x01 = Power-on 0x02 = Alarm 0x03 = Basic menu 0x04 = Setup menu 0x05 = Clock menu 0x06 = Initialising 0x08 = Engineering menu 0x0A = iPod menu

## Source selection

Change the source of Solo Movie.

### Example

Command/response sequence to change the source to 'Tape':

*COMMAND: 0x21 0x01 0x01 0x01 0x03 0x0D*

*RESPONSE: 0x21 0x01 0x01 0x01 0x01 0x03 0x0D*

Byte:	Description:
ZN	0x01 (Zone)
CC	0x01 (Command code)
NB	0x01 (Number of bytes)
DATA	0x00 = DVD 0x01 = FM 0x02 = DAB/AM 0x03 = AV 0x04 = SAT 0x05 = AUX 0x06 = TAPE 0xF0 = Query

## Main volume

Change the volume level of Solo Movie.

### Example

Command/response sequence to change Zone 1 volume to 36:

*COMMAND: 0x21 0x01 0x02 0x01 0x24 0x0D*

*RESPONSE: 0x21 0x01 0x02 0x01 0x01 0x24 0x0D*

Byte:	Description:
ZN	0x01 (Zone 1) 0x02 (Zone 2)
CC	0x02 (Command code)
NB	0x01 (Number of bytes)
DATA	0x00 = Volume 0 ... 0x48 = Volume 72 0xF0 = Query

## Balance

Change the speaker balance.

### Example

Command/response sequence to set the output of the left channel, where the new balance is 3dB to the left:

*COMMAND: 0x21 0x01 0x04 0x01 0x61 0x0D*

*RESPONSE: 0x21 0x01 0x04 0x01 0x01 0x61 0x0D*

Byte:	Description:
ZN	0x01 (Zone)
CC	0x04 (Command code)
NB	0x01 (Number of bytes)
DATA	0x5A = Left +10 ... 0x64 = Left/Right ... 0x6E = Right +10 0xF0 = Query

## Bass

Change the bass level.

### Example

Command/response sequence to set the bass, where the new level is +1dB:

*COMMAND: 0x21 0x01 0x05 0x01 0x65 0x0D*

*RESPONSE: 0x21 0x01 0x05 0x01 0x01 0x65 0x0D*

Byte:	Description:
ZN	0x01 (Zone)
CC	0x05 (Command code)
NB	0x01 (Number of bytes)
DATA	0x5D = -7 ... 0x64 = 0 ... 0x6B = +7 0xF0 = Query

## Treble

Change the treble level.

### Example

Command/response sequence to set the treble, where the new level is -6dB:

COMMAND: 0x21 0x01 0x06 0x01 0x5E 0x0D

RESPONSE: 0x21 0x01 0x06 0x01 0x01 0x5E 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0x06 (Command code)
NB	0x01 (Number of bytes)
DATA	0x5D = -7 ... 0x64 = 0 ... 0x6B = +7 0xF0 = Query

## Bass correction

Change the bass correction level.

### Example

Command/response sequence to turn bass correction off:

COMMAND: 0x21 0x01 0x07 0x01 0x00 0x0D

RESPONSE: 0x21 0x01 0x07 0x01 0x01 0x00 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0x07 (Command code)
NB	0x01 (Number of bytes)
DATA	0x00 = Bass correction Off ... 0x03 = Bass correction Max 0xF0 = Query.

## Sub level

Change the sub level.

### Example

Command/response sequence to set the sub level, where the new level is +5db:

COMMAND: 0x21 0x01 0x17 0x01 0x0F 0x0D

RESPONSE: 0x21 0x01 0x17 0x01 0x01 0x0F 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0x17 (Command code)
NB	0x01 (Number of bytes)
DATA	0x00 = -10 ... 0x0A = 0 ... 0x14 = +10 0xF0 = Query

## Mute

Mute the output.

### Example

Command/response sequence to set the mute state of Zone 1, where the result is that the output is muted:

COMMAND: 0x21 0x01 0x08 0x01 0x01 0x0D

RESPONSE: 0x21 0x01 0x08 0x01 0x01 0x01 0x0D

Byte:	Description:
ZN	0x01 (Zone 1) 0x02 (Zone 2)
CC	0x08 (Command code)
NB	0x01 (Number of bytes)
DATA	0x00 = Mute Off 0x01 = Mute On 0xF0 = Query

## Preset mode/Preset select

Command/response sequence to query the unit for the current preset mode, to toggle the preset mode, or load a stored preset.

### Example

Command/response sequence to query the current preset mode, where the result is Tune mode with preset number 5 loaded:

COMMAND: 0x21 0x01 0x13 0x01 0xF0 0x0D

RESPONSE: 0x21 0x01 0x13 0x01 0x02 0x00 0x05 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0x13 (Command code)
NB	0x01 (Number of bytes)
DATA	0x01 ... 0x1E = Preset number to load 0xF0 = Query mode 0xF3 = Toggle mode
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0x13 (Reply Code)
AC	0x01 (Answer code)
NB	0x02 (Number of bytes)
D1	0x00 = Tune mode 0x01 = Preset mode
D2	Current preset number

## Display brightness

Set the display brightness.

### Example

Command/response sequence to set the display brightness, where the result is that the display brightness is at level 1:

COMMAND: 0x21 0x01 0x0A 0x01 0x01 0x0D

RESPONSE: 0x21 0x01 0x0A 0x01 0x01 0x01 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0x0A (Command code)
NB	0x01 (Number of bytes)
DATA	0x00 = Display Off ... 0x04 = Display full brightness 0xF0 = Query

## Stand-by display brightness

Set the Stand-by display brightness.

### Example

Command/response sequence to set the display brightness, where the result is that the display brightness is at level 1:

COMMAND: 0x21 0x01 0x16 0x01 0x01 0x0D

RESPONSE: 0x21 0x01 0x16 0x01 0x01 0x01 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0x16 (Command code)
NB	0x01 (Number of bytes)
DATA	0x00 = Display Off ... 0x04 = Display full brightness 0xF0 = Query

## 'Snooze' time

Set the 'snooze' time (when applicable).

### Example

Command/response sequence to set the snooze time to 90 minutes:

COMMAND: 0x21 0x01 0x29 0x01 0x5A 0x0D

RESPONSE: 0x21 0x01 0x29 0x01 0x01 0x5A 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0x29 (Command code)
NB	0x01 (Number of bytes)
DATA	0x00 = Off 0x01 = 1 minute ... 0x5A = 90 minutes 0xF0 = Query

## 'Sleep' time

Set the 'sleep' time.

### Example

Command/response sequence to set the sleep time to 120 minutes:

COMMAND: 0x21 0x01 0x31 0x01 0x78 0x0D

RESPONSE: 0x21 0x01 0x31 0x01 0x01 0x78 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0x31 (Command code)
NB	0x01 (Number of bytes)
DATA	0x00 = Off 0x01 = 1 minute ... 0x78 = 120 minutes 0xF0 = Query

## Headphones

Determine whether headphones are connected to Solo Movie.

### Example

Command/response sequence to request the headphone status, where the headphones are not connected:

COMMAND: 0x21 0x01 0x32 0x01 0xF0 0x0D

RESPONSE: 0x21 0x01 0x32 0x01 0x01 0x00 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0x32 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0x32 (Reply Code)
AC	0x01 (Answer code)
NB	0x01 (Number of bytes)
DATA	0x00 = No headphones 0x01 = Headphones connected

## Request tuner module type

Determine the tuner module type present in Solo Movie.

### Example

Command/response sequence to request the tuner module type, where the type is DAB/FM:

COMMAND: 0x21 0x01 0x37 0x01 0xF0 0x0D

RESPONSE: 0x21 0x01 0x37 0x01 0x01 0x00 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0x37 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0x37 (Reply Code)
AC	0x01 (Answer code)
NB	0x01 (Number of bytes)
DATA	0x00 = DAB/FM module fitted 0x01 = AM/FM module fitted

## Radio station

Request radio station label (DAB/RDS)

### Example

Command/response sequence to request station label, where the new station is called "DAB STATION 2":

**COMMAND: 0x21 0x01 0xDE 0x01 0xF0 0x0D**

**RESPONSE: 0x21 0x01 0xDE 0x01 0x0D 0x44 0x41 0x42 0x20 0x53 0x54 0x41 0x54 0x49 0x4F 0x4E 0x20 0x32 0x0D**

Byte:	Description:
ZN	0x01 (Zone)
CC	0xDE (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Request the current DAB station
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0xDE (Reply Code)
AC	0x01 (Answer code)
NB	(Number of bytes)
Dn	Response: The service label of the new radio station, in ASCII characters

## Radio station information

Request information on the current radio station.

### Example

Command/response sequence to request the station frequency, where the source is AM and the frequency is 1089kHz:

**COMMAND: 0x21 0x01 0xDF 0x02 0xF0 0x00 0x0D**

**RESPONSE: 0x21 0x01 0xDF 0x01 0x02 0x04 0x41 0x0D**

### Example

Command/response sequence to request the station frequency, where the source is FM and the frequency is 105.2MHz:

**COMMAND: 0x21 0x01 0xDF 0x02 0xF0 0x00 0x0D**

**RESPONSE: 0x21 0x01 0xDF 0x01 0x02 0x69 0x32 0x0D**

### Example

Command/response sequence to request the signal strength, where the current signal strength is 10:

**COMMAND: 0x21 0x01 0xDF 0x02 0xF0 0x01 0x0D**

**RESPONSE: 0x21 0x01 0xDF 0x01 0x02 0x0A 0x00 0x0D**

Byte:	Description:
ZN	0x01 (Zone)
CC	0xDF (Command code)
NB	0x02 (Number of bytes)
D1	0xF0 = Request station information
D2	If the current source is FM/AM: 0x00 = Request the station frequency 0x01 = Request the station signal strength  If the current source is DAB: 0x01 = Request the station signal strength 0x02 = Request the station MPEG mode 0x04 = Request the station data rate
RESPONSE	
Byte:	Description:
RC	0xDF (Reply Code)
AC	0xDF (Answer code)
NB	0x03 (Number of bytes)
D1	0x00 = Message contains station freq. 0x01 = Message contains signal strength 0x02 = Message contains MPEG mode 0x04 = Message contains data rate
D2	Response to the AM frequency request: MSB of current frequency  Response to the FM frequency request: MHz of current frequency  Response to the DAB MPEG mode request: 0x00 = Stereo 0x01 = Joint stereo 0x02 = Dual mono 0x03 = Mono  Response to the DAB data rate request: 0x00 - 0xC0 (0 - 192kb/s) = data rate  Response to the signal strength request: 0x00 - 0x10 = signal strength
D3	Response to the AM frequency request: LSB of current frequency  Response to the FM frequency request: kHz/10 of current frequency  Response to the DAB MPEG mode request: 0x00  Response to the DAB data rate request: 0x00  Response to the signal strength request: 0x00



## Radio programme type

Query the current station programme type (DAB/FM only).

### Example

Command/response sequence to request PTY where current PTY is 'POP MUSIC':

**COMMAND:** 0x21 0x01 0xE6 0x01 0xF0 0x0D

**RESPONSE:** 0x21 0x01 0xE6 0x01 0x09 0x50 0x4F 0x50 0x20 0x4D 0x55 0x53  
0x49 0x43 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0xE6 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Request programme type
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0xE6 (Reply Code)
AC	Answer code
NB	(Number of bytes)
Dn	Response: The programme type of the selected station, in ASCII characters.

## Request RDS/DLS information

Request RDS/DLS (FM/DAB) information from the current radio station.

### Example

Command/response sequence to request the RDS/DLS information, where the information is "Playing your favourite music":

**COMMAND:** 0x21 0x01 0xE7 0x01 0xF0 0x0D

**RESPONSE:** 0x21 0x01 0xE7 0x01 0x1C 0x50 0x6c 0x61 0x79 0x69 0x6E 0x67  
0x20 0x79 0x6F 0x75 0x72 0x20 0x66 0x61 0x76 0x6F 0x75 0x72 0x69 0x74  
0x65 0x20 0x6D 0x75 0x73 0x69 0x63 0x0D

Byte:	Description:
ZN	0x01 (Zone)
CC	0xE7 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Request RDS/DLS information
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0xE7 (Reply Code)
AC	Answer code
NB	(Number of bytes)
Dn	Response: The RDS/DLS information of the selected station, in ASCII characters. Up to 128 characters may be returned.

## Virtual remote

Sends an RC5 system/command code combination via RS232. Solo Movie will respond as if the command was received over IR.

### Example

Command/response sequence to set decode mode to PLII Movie using the relevant IR code (16-33):

(See IR section/document for details)

**COMMAND:** 0x21 0x01 0xE9 0x02 0x10 0x21 0x0D

**RESPONSE:** 0x21 0x01 0xE9 0x02 0x02 0x10 0x21 0x0D

Byte:	Description:
ZN	0x01 (Zone 1) 0x02 (Zone 2)
CC	0xE9 (Command code)
NB	0x02 (Number of bytes)
DATA	MSB = System code LSB = Command code

## DVD player status

Query the current DVD section state.

### Example

Command/response sequence to request the current DVD player, where the tray is currently open:

**COMMAND: 0x21 0x01 0xEC 0x01 0xF0 0x0D**

**RESPONSE: 0x21 0x01 0xEC 0x01 0x02 0x08 0x00 0x0D**

Byte:	Description:
ZN	0x01 (Zone)
CC	0xEC (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Request DVD information
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
CC	0xEC (Command code)
NB	0x01 (Number of bytes)
D1	0x01 = Loading 0x02 = Playing 0x03 = Stopped 0x04 = Scanning Back 0x05 = Scanning Forward 0x08 = Tray Open 0x09 = Paused 0x0A = Stop Resume 0x0B = Slow Back 0x0C = Slow Forward 0x0D = Skipping 0x0E = Other
D2	when scanning: 0x01 = x2 0x02 = x4 0x03 = x8 0x04 = x16  when slow: 0x01 = 1/2 0x02 = 1/4 0x03 = 1/6 0x04 = 1/8

## Disc play mode

Set the current playmode.

### Example

Command/response sequence to set the current disc playmode, where the playmode is repeat all:

**COMMAND: 0x21 0x01 0x54 0x01 0x03 0x0D**

**RESPONSE: 0x21 0x01 0x54 0x01 0x01 0x03 0x0D**

Byte:	Description:
ZN	0x01 (Zone )
CC	0x54 (Command code)
NB	0x01 (Number of bytes)
DATA	0x00 = Playmode Off BITS 1~0 00 = Repeat Off 01 = Repeat Single 11 = Repeat All BIT 2 0 = Shuffle Off 1 = Shuffle On BIT 3 0 = Program Off 1 = Program 0xF0 = Query

## DVD angle

Query the current DVD angle.

### Example

The response sequence where current angle is 1 from a total of 5 angles:

**COMMAND: 0x21 0x01 0x50 0x01 0xF0 0x0D**

**RESPONSE: 0x21 0x01 0x50 0x01 0x02 0x01 0x05 0x0D**

Byte:	Description:
ZN	0x01 (Zone)
CC	0x50 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0x50 (Reply Code)
AC	0x01 (Answer code)
NB	0x02 (Number of bytes)
Dn	MSB = Current Angle LSB = Total Angles

**DVD subtitle**

Query current DVD subtitle

**Example**

Current subtitle 2/6, English:

*COMMAND: 0x21 0x01 0x51 0x01 0xF0 0x0D**RESPONSE: 0x21 0x01 0x51 0x01 0x04 0x02 0x06 0x45 0x4E 0x0D*

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0x51 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0x51 (Reply Code)
AC	0x01 (Answer code)
NB	0x04 (Number of bytes)
Dn	MSB = Current subtitle Byte = Total subtitles LSB(2) = ISO639-1 language code

**DVD zoom**

Query current DVD zoom level

**Example**

Current zoom level 2:

*COMMAND: 0x21 0x01 0x52 0x01 0xF0 0x0D**RESPONSE: 0x21 0x01 0x52 0x01 0x01 0x02 0x0D*

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0x52 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0x52 (Reply Code)
AC	0x01 (Answer code)
NB	0x01 (Number of bytes)
Dn	0x00 = No zoom ... 0x03 = Zoom level 3

**DVDA page**

Query current DVDA page

**Example**

Current page 4/4:

*COMMAND: 0x21 0x01 0x53 0x01 0xF0 0x0D**RESPONSE: 0x21 0x01 0x53 0x01 0x02 0x04 0x04 0x0D*

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0x53 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0x50 (Reply Code)
AC	0x01 (Answer code)
NB	0x02 (Number of bytes)
DATA	MSB = Current page LSB = Total pages

**DVD total track-chapter-time information**

Query current track/chapter/time information.

**Example**

Total track time 0h 14m 48s:

*COMMAND: 0x21 0x01 0x55 0x01 0xF0 0x0D**RESPONSE: 0x21 0x01 0x55 0x01 0x03 0x00 0x0E 0x2C 0x0D*

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0x55 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0x55 (Reply Code)
AC	0x01 (Answer code)
NB	0x03 (Number of bytes)
DATA	MSB = Hours Byte = Minutes LSB = Seconds

## DVD total disc-group-title-time information

Query current group/title/time information

### Example

Current disc time 0h 74m 02s

COMMAND: 0x21 0x01 0x56 0x01 0xF0 0x0D

RESPONSE: 0x21 0x01 0x56 0x01 0x03 0x00 0x4A 0x02 0x00

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0x56 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0x56 (Reply Code)
AC	0x01 (Answer code)
NB	0x03 (Number of bytes)
DATA	MSB = Hours Byte = Minutes LSB = Seconds

## DVD Disc menu

Query Disc menu state

### Example

COMMAND: 0x21 0x01 0x57 0x01 0xF0 0x0D

RESPONSE: 0x21 0x01 0x57 0x01 0x01 0x00 0x0D

- indicates that the disc menu is not open.

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0x57 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0x57 (Reply Code)
AC	0x01 (Answer code)
NB	0x01 (Number of bytes)
DATA	0x00 = No disc menu open 0x01 = Disc menu open

## FM search

Starts an FM search either up or down the frequency band

### Example

Command/response sequence to start an FM scan going up the frequency band

COMMAND: 0x21 0x01 0xDA 0x01 0xF2 0x0D

RESPONSE: 0x21 0x01 0xDA 0x02 0x01 0xF2 0x0D

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0xDA (Command code)
NB	0x01 (Number of bytes)
DATA	0xF1 = Scan Down 0xF1 = Scan Up

## Preset save

Saves a radio station to a specific preset number

### Example

Command/response sequence to save the currently selected radio station to preset number 5

COMMAND: 0x21 0x01 0xDC 0x01 0x05 0x0D

RESPONSE: 0x21 0x01 0xDC 0x02 0x01 0x05 0x0D

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0xDC (Command code)
NB	0x01 (Number of bytes)
DATA	0x01 ... 0x1E = Preset number to use

## Disc chapter-track information

Query current chapter/track info

### Example

Current track/chapter title 2 chapter 23 (total 6:32)

COMMAND: 0x21 0x01 0xE8 0x01 0xF0 0x0D

RESPONSE: 0x21 0x01 0xE8 0x01 0x06 0x02 0x06 0x00 0x17 0x00 0x20 0x0D

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0xE8 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0xE8 (Reply Code)
AC	0x01 (Answer code)
NB	0x06 (Number of bytes)
DATA	MSB = Current Group/Title (0~99) BYTE = Total Group/Title(0~99) BYTE(2) = Current Chapter/Track (0~999) LSB(2) = Total Chapters/Tracks (0~999)

## Playback time

Query current playback time, CD track, DVD title:

Example

DVD 34m 22s into movie:

COMMAND: 0x21 0x01 0xEB 0x01 0xF0 0x0D

RESPONSE: 0x21 0x01 0xEB 0x01 0x03 0x00 0x22 0x16 0x0D

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0xEB (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0xEB (Reply Code)
AC	0x01 (Answer code)
NB	0x03 (Number of bytes)
DATA	MSB = Hours Byte = Minutes (0~59) LSB = Seconds (0~59)

## Disc type

Query current disc type

Example

SACD is loaded:

COMMAND: 0x21 0x01 0xED 0x01 0xF0 0x0D

RESPONSE: 0x21 0x01 0xED 0x01 0x01 0x04 0x0D

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0xED (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0xED (Reply Code)
AC	0x01 (Answer code)
NB	0x01 (Number of bytes)
DATA	0x00 = DVD 0x01 = DVD-A 0x02 = CD 0x03 = HDCD 0x04 = SACD 0x05 = VCD 0x06 = SVCD 0x07 = PHOTO CD 0x08 = CD-ROM 0x09 = DVD-ROM 0x0A = Upgrade 0x20 = Unknown 0x21 = No Disc

## HDMI resolution

Change the HDMI resolution

Example

Command/response sequence to change the resolution to 720p:

COMMAND: 0x21 0x01 0x47 0x01 0x03 0x0D

RESPONSE: 0x21 0x01 0x47 0x02 0x01 0x03 0x0D

Byte:	Description:
ZN	0x01 (Zone 1)
CC	0x47 (Command code)
NB	0x01 (Number of bytes)
DATA	0x01 = SD interlaced 0x02 = SD progressive 0x03 = 720p 0x04 = 1080i 0x06 = 768p 0x80 = Auto 0xF0 = Query

## Audio stream decode mode

Query current audio stream

The number of channels indicated is from the original audio stream (e.g., two channels from the disc with Dolby Prologic II decoding will return two channels of audio, even though audio may be also present on more than two channels).

Example

**COMMAND: 0x21 0x01 0xEE 0x01 0xF0 0x0D**

**RESPONSE: 0x21 0x01 0xEE 0x01 0x07 0x01 0x05 0x01 0x45 0x4E 0x85 0x00 0x0D**

– indicates command processing and that the current audio is Dolby Digital, 5.1, ISO639-1 language code 'EN', with PLII Off, and is the first from a total of 5 audio streams available.

Byte:	Description:
ZN	0x01
CC	0xEE (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0xEE (Reply Code)
AC	0x01 (Answer code)
NB	0x07 (Number of bytes)
D1	Current audio stream
D2	Total audio streams
D3	Stream type 0x00 = None 0x01 = Dolby Digital 0x02 = DTS 0x03 = MPEG 0x04 = MP3 0x05 = WMA 0x07 = PCM 0x0A = SACD 0x0B = MLP 0x0C = AAC 0x0D = OGG
D4 ~ D5	ISO639-1 Language code
D6	(0x80 & LFE)   (0x7F & Number of channels)
D7	Decode mode 0x00 = Prologic II Off 0x01 = Prologic II Emulation 0x02 = Prologic II Matrix 0x03 = Prologic II Music 0x04 = Prologic II Movie 0x05 = Stereo direct

## DVD Popup menu

Query current state of popup menu

Example

Search popup currently on display:

**COMMAND: 0x21 0x01 0xF4 0x01 0xF0 0x0D**

**RESPONSE: 0x21 0x01 0xF4 0x01 0x01 0x05 0x0D**

Byte:	Description:
ZN	0x01
CC	0xF4 (Command code)
NB	0x01 (Number of bytes)
DATA	0xF0 = Query
RESPONSE	
Byte:	Description:
ZN	0x01 (Zone)
RC	0xF4 (Reply Code)
AC	0x01 (Answer code)
NB	0x01 (Number of bytes)
DATA	0x00 = Popup menus closed 0x03 = Trims popup menu 0x05 = Search popup menu 0x06 = Lipsync popup menu

## Time command

Gets/sets the Real-Time Clock (RTC)

*(Query/set only, no status message is generated for this command)*

Example

Command/response sequence to set clock to 17:30 Friday:

**COMMAND: 0x21 0x01 0xF8 0x04 0x05 0x11 0x1E 0x00 0x0D**

**RESPONSE: 0x21 0x01 0xF8 0x01 0x05 0x11 0x1E 0x00 0x0D**

Byte:	Description:
ZN	0x01
CC	0xF8 (Command code)
NB	0x04 (Number of bytes)
D1	Day 0x01 = Monday ... 0x07 = Sunday
D2	Hours 0x00 = 00:00 (12:00am) 0x01 = 01:00 (01:00am) ... 0x16 = 22:00 (10:00pm) 0x17 = 23:00 (11:00pm))
D3	Minutes 0x00 = 0 minutes ... 0x3B = 59 minutes
D4	Seconds 0x00 = 0 seconds ... 0x3B = 59 seconds
DATA	0xF0 = Query

# IR remote commands

The following tables give the IR (infrared) remote commands accepted by the Arcam Solo Movie.

## AMP commands

### System code 16

Decimal Code	Command
16-0	Source SAT
16-2	Source AV
16-3	Source DAB
16-4	Source DVD
16-5	Source TAPE
16-8	Source AUX
16-12	Standby
16-13	Mute
16-14	Eject
16-16	Volume +
16-17	Volume -
16-18	Bass Correction +
16-19	Bass Correction -
16-20	Sub Trim +
16-21	Sub Trim -
16-22	Bass +
16-23	Bass -
16-24	Treble +
16-25	Treble -
16-26	Balance Right
16-27	Balance Left
16-31	Decode Mode Stereo Direct
16-32	Display Mode
16-33	Decode Mode PLII Movie
16-34	Decode Mode PLII Music
16-35	Decode Mode PLII Matrix
16-36	Decode Mode Off
16-40	Setup
16-51	Sub Trim
16-52	Source DAB/AM
16-53	Source FM
16-55	Display Mode
16-59	Display Brightness
16-67	Zone 1 Volume +
16-68	Zone 1 Volume -
16-69	Zone 1 Mute
16-71	Zone 1 Mute On
16-72	Zone 1 Mute Off
16-73	Zone 2 Volume +
16-74	Zone 2 Volume -
16-75	Zone 2 Mute
16-76	Zone 2 Mute On
16-77	Zone 2 Mute Off
16-80	Navigate Right
16-81	Navigate Left
16-82	Menu
16-85	Navigate Down
16-86	Navigate Up
16-87	OK
16-113	Alarm 1 Toggle
16-114	Alarm 2 Toggle
16-115	Alarm 3 Toggle
16-116	Alarm 4 Toggle
16-117	Snooze
16-118	Sleep
16-119	Mute On
16-120	Mute Off
16-123	Standby Off
16-124	Standby On

## TUN commands

### System code 17

Decimal Code	Command
17-0	Tuner Number 0
17-1	Tuner Number 1
17-2	Tuner Number 2
17-3	Tuner Number 3
17-4	Tuner Number 4
17-5	Tuner Number 5
17-6	Tuner Number 6
17-7	Tuner Number 7
17-8	Tuner Number 8
17-9	Tuner Number 9
17-12	Standby
17-13	Mute
17-15	Display Mode
17-18	Display Brightness
17-32	Preset +
17-33	Preset -
17-37	Preset/Tune
17-38	FM/Mono
17-52	Source DAB/AM
17-53	Source FM
17-55	Sub Trim
17-77	Navigate Right
17-78	Navigate Left
17-85	Navigate Down
17-86	Navigate Up
17-87	Ok
17-91	Direct Preset 1
17-92	Direct Preset 2
17-93	Direct Preset 3
17-94	Direct Preset 4
17-95	Direct Preset 5
17-96	Direct Preset 6
17-97	Direct Preset 7
17-98	Direct Preset 8
17-99	Direct Preset 9
17-100	Direct Preset 10
17-101	Direct Preset 11
17-102	Direct Preset 12
17-103	Direct Preset 13
17-104	Direct Preset 14
17-105	Direct Preset 15
17-106	Direct Preset 16
17-107	Direct Preset 17
17-108	Direct Preset 18
17-109	Direct Preset 19
17-110	Direct Preset 20
17-111	Direct Preset 21
17-112	Direct Preset 22
17-113	Direct Preset 23
17-114	Direct Preset 24
17-115	Direct Preset 25
17-116	Direct Preset 26
17-117	Direct Preset 27
17-118	Direct Preset 28
17-119	Direct Preset 29
17-120	Direct Preset 30
17-123	Standby Off
17-124	Standby On
17-125	Menu

## AUX commands

### System code 21

Note that iPod® commands require iPod control to be enabled and iPod input to be selected.

Decimal Code	Command
21-0	iPod Number 0
21-1	iPod Number 1
21-2	iPod Number 2
21-3	iPod Number 3
21-4	iPod Number 4
21-5	iPod Number 5
21-6	iPod Number 6
21-7	iPod Number 7
21-8	iPod Number 8
21-9	iPod Number 9
21-13	Mute
21-16	Volume +
21-17	Volume -
21-32	iPod Track Forward
21-33	iPod Track Back
21-45	iPod Eject
21-48	iPod Pause
21-53	iPod Play
21-54	iPod Stop
21-55	Display Mode
21-69	iPod Random
21-70	iPod Repeat
21-80	Navigate Up
21-81	Navigate Down
21-85	Navigate Left
21-86	Navigate Right
21-87	Ok
21-112	iPod Scan Back
21-113	iPod Scan Forward
21-114	Menu

## DVD commands

### System code 25

Decimal Code	Command
25-0	DVD Number 0
25-1	DVD Number 1
25-2	DVD Number 2
25-3	DVD Number 3
25-4	DVD Number 4
25-5	DVD Number 5
25-6	DVD Number 6
25-7	DVD Number 7
25-8	DVD Number 8
25-9	DVD Number 9
25-12	Standby
25-18	Display Brightness
25-19	Scan Forward x2
25-20	Scan Forward x4
25-21	Scan Forward x8
25-22	Scan Forward x16
25-23	Scan Forward x50
25-24	Scan Forward x100
25-25	Slow Forward x1/2
25-26	Slow Forward x1/4
25-27	Slow Forward x1/6
25-28	Slow Forward x1/8
25-29	DVD Repeat
25-30	DVD Slow Play Forward
25-31	DVD Slow Play Back
25-32	DVD Track Forward
25-33	DVD Track Back
25-37	Trims

25-41	Program
25-45	DVD Eject
25-48	DVD Pause
25-50	DVD Scan Back
25-52	DVD Scan Forward
25-53	DVD Play
25-54	DVD Stop
25-55	Sub
25-58	Clear
25-59	Repeat A-B
25-60	Slow Backward x1/2
25-61	Slow Backward x1/4
25-62	Slow Backward x1/6
25-63	Slow Backward x1/8
25-64	DVD Random
25-65	Subtitle
25-66	Title
25-67	DVD Menu
25-68	Zoom
25-69	Audio
25-70	Lipsync
25-73	Angle
25-74	Setup
25-75	Status
25-76	Search
25-77	Display Mode
25-80	Navigate Right
25-81	Navigate Left
25-85	Navigate Down
25-86	Navigate Up
25-87	Ok
25-88	HDMI
25-89	HDMI Resolution Auto
25-90	HDMI Resolution SD Interlaced
25-91	HDMI Resolution SD Progressive
25-92	HDMI Resolution 720p
25-93	HDMI Resolution 1080i
25-94	HDMI Resolution 1080p (DV137/9 only)
25-95	HDMI Resolution 768p
25-96	Zoom Off
25-97	Zoom Level 1
25-98	Zoom Level 2
25-99	Zoom Level 3
25-100	Zoom Level 4
25-104	Scan Backward x2
25-105	Scan Backward x4
25-106	Scan Backward x8
25-107	Scan Backward x16
25-108	Scan Backward x50
25-109	Scan Backward x100
25-115	Repeat All
25-116	Repeat Single
25-117	Repeat Off
25-118	Shuffle On
25-119	Shuffle Off
25-123	Standby Off
25-124	Standby On



# ARCAM