

# Digital Mixer

## Andante 8 / Andante 16

### RS232 Serial Protocol Description



## 1. Introduction

This document describes how to communicate with the Andante16 and Andante 8 via the serial RS232 port. This protocol is for use with the Andante 16 and Andante 8 loaded with Version 1.6.7 software or greater.

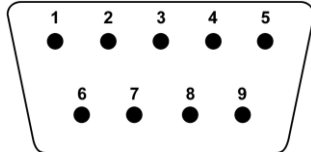
A remote controller will be able to control the following functions and more:

- Preset Change
- Master Volume
- Input Channel Levels
- Input Channel Mutes
- Output Channel Levels
- Output Channel Mutes
- Matrix Cross-point Levels
- Matrix Cross-point Mutes

On successful reception, every byte will be echoed by the Andante, thus enabling a communication check by the sending device.

## 2. Physical Interface

The physical interface uses a standard 9 pin female D-Type connector with RX/TX and GND. No handshake lines are required.

PIN	PURPOSE	DB9 - Female
1	<i>Not Used</i>	
2	Transmit	
3	Receive	
4	<i>Not Used</i>	
5	Ground	
6	<i>Not Used</i>	
7	<i>Not Used</i>	
8	<i>Not Used</i>	
9	<i>Not Used</i>	

Connection to a personal computer's RS232 port for example, requires a female to male standard straight through serial cable.

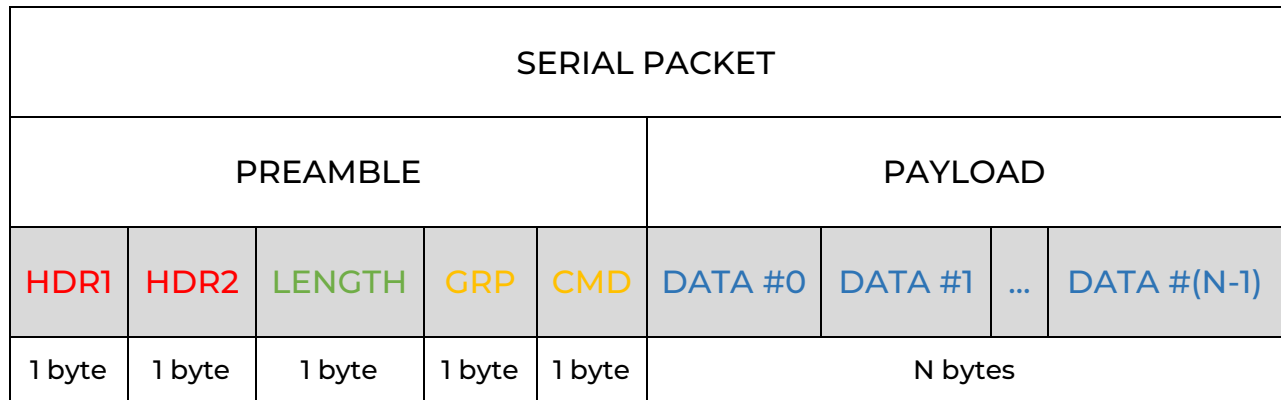
### 2.1. Serial Port Settings

PARAMETER	VALUE
Baud Rate	38400
Data Bits	8
Stop Bits	1
Parity	Even
Flow Control	None

### 3. Serial Packet

#### 3.1. Syntax Diagram

A serial packet in the Andante serial stack has the following format over the wire.



#### 3.2. Fields Description

FIELD	DESCRIPTION	VALUE	SIZE (num of bytes)
<HDR1>	Header #1 of packet	0xAA	1
<HDR2>	Header #2 of packet	0x00	1
<LENGTH>	Length of packet	Length of packet is 5 + N where N represents the number of byte in payload (it's always N ≥ 4). Length is up to 64 for RX packet and up to 255 for TX packet.	1

<b>&lt;GRP&gt;</b>	The group the following command belongs to	INPUT GROUP 0 OUTPUT GROUP 1 MATRIX GROUP 2 SYSTEM GROUP 3 PRESET GROUP 4 STATUS GROUP 5	1
<b>&lt;CMD&gt;</b>	Command	<pre>                     -----                     INPUT GROUP                     -----                      SETINSTATUS 0                     SETINLEVEL 1                     SETINGAIN 2                     SETINPHANTOM 3                     SETINAUTOMIXSTATUS 4                     SETINHUMFILTER 5                     SETINLOWPASSHIGHPAS 6                      SETINNOISEGATESTATUS 15                     SETINNOISEGATETHRES 16                      SETINCOMPSTATUS 17                     SETINCOMPGAIN 18                     SETINCOMPTHRES 19                     SETINCOMPRATIO 20                     SETINCOMPATTACK 21                     SETINCOMPRELEASE 22                      SETINLIMSTATUS 23                      SETINPEQ 24                      SETINNOISEGATEHOLD 26                      SETINAUTOMIXPRIORITY 30                     SETINAUTOMIXHOLDTIME 31                     SETINAUTOMIXRESETTIME 32                     SETINAUTOMIXOFFATTENUATION 33                     SETINAUTOMIXNOMGAIN 34                      SETINDELTALEVEL 40                      GETINSTATUS 100                     GETINLEVEL 101                     GETINGAIN 102                     GETINPHANTOM 103                     GETINAUTOMIXSTATUS 104                     GETINHUMFILTER 105                     GETINLOWPASSHIGHPASS 106                      GETINNOISEGATESTATUS 115                     GETINNOISEGATETHRES 116                      GETINCOMPSTATUS 117                     GETINCOMPGAIN 118                     GETINCOMPTHRES 119                 </pre>	1

	GETINCOMPRATIO	120
	GETINCOMPATTACK	121
	GETINCOMPRELEASE	122
	GETINLIMSTATUS	123
	GETINPEQ	124
	GETINNOISEGATEHOLD	126
	GETINAUTOMIXPRIORITY	130
	GETINAUTOMIXHOLDTIME	131
	GETINAUTOMIXRESETTIME	132
	GETINAUTOMIXOFFATTENUATION	133
	GETINAUTOMIXNOMGAIN	134
	GETINDELTALEVEL	140
	----- MATRIX COMMANDS -----	
	SETMTXSTATUS	0
	SETMTXLEVEL	1
	GETMTXSTATUS	100
	GETMTXLEVEL	101
	----- OUPUT COMMANDS -----	
	SETOUTSTATUS	0
	SETOUTLEVEL	1
	SETOUTPHASEINV	2
	SETOUTDELAY	3
	SETOUTNOISEGATESTATUS	47
	SETOUTNOISEGATETHRES	48
	SETOUTCOMPSTATUS	49
	SETOUTCOMPGAIN	50
	SETOUTCOMPTHRES	51
	SETOUTCOMPRATIO	52
	SETOUTCOMPATTACK	53
	SETOUTCOMPRELEASE	54
	SETOUTLIMSTATUS	55
	SETOUTPEQ	57
	SETOUTGEQ	59
	SETOUTLOWPASSHIGHPASS	60
	SETOUTNOISEGATEHOLD	61
	SETANTIFEEBACKSTATUS	65
	SETANTIFEEBACKNOTCH	66
	SETOUTDELTALEVEL	70
	GETOUTSTATUS	100
	GETOUTLEVEL	101
	GETOUTPHASEINV	102
	GETOUTDELAY	103

	GETOUTNOISEGATESTATUS	147
	GETOUTNOISEGATETHRES	
	148	
	GETOUTCOMPSTATUS	149
	GETOUTCOMPAIN	150
	GETOUTCOMPTHRES	151
	GETOUTCOMPRATIO	152
	GETOUTCOMPATTACK	153
	GETOUTCOMPRELEASE	154
	GETOUTLIMSTATUS	155
	GETOUTPEQ	157
	GETOUTGEQ	159
	GETOUTLOWPASSHIGHPASS	160
	GETOUTNOISEGATEHOLD	161
	GETANTIFEEDBACKSTATUS	165
	GETANTIFEEDBACKNOTCHES	166
	GETOUTDELTALEVEL	170
	-----	
	SYSTEM COMMANDS	
	-----	
	SETINNAME	0
	SETOUTNAME	1
	SETSTARTUPPRESET	2
	SETINRCA	3
	SETPANELPROTECTION	4
	SETPINPROTECTION	5
	SETPINCODE	6
	SETWELCOMETEXT	7
	SETMAINVUMETER	8
	SETSYSTEMSETUPSAVE	20
	SETSERIALNUMBER	22
	SETSTATUSMODE	
	23	
	SETSYSTEMRESET	85
	SETDSPAUDIORUN	95
	GETINNAME	100
	GETOUTNAME	101
	GETSTARTUPPRESET	102
	GETINRCA	103
	GETPANELPROTECTION	104
	GETPINPROTECTION	105
	GETPINCODE	106
	GETWELCOMETEXT	107
	GETMAINVUMETER	108
	GETSERIALNUMBER	122
	GETSTATUSMODE	123
	GETMCUFIRMWAREVERSION	124
	GETDSPFIRMWAREVERSION	125
	-----	
	PRESET COMMANDS	

		<pre> ----- SETPRESETINDEX           0 SETPRESETNAME   1 SETPRESETSTATUS         2 SETPRESETVOLUME         3 SETPRESETMAXOPENMICS   4 SETPRESETSAVE           5 SETPRESETRESET          8  SETPRESETDELTAVOLUME   9  GETPRESETINDEX           100 GETPRESETNAME   101 GETPRESETSTATUS         102 GETPRESETVOLUME         103 GETPRESETMAXOPENMICS   104  GETPRESETDELTAVOLUME    109  ----- STATUS COMMANDS -----  GETDSPSTATUS             0  GETAUTOMIXACTING         1 GETCOMPRESSORACTING      2 GETNOISEGATESELECTING   3  GETSPECTRUMCHANNEL       4 GETANTIFEEDBACKCHANNEL  5 </pre>	
<DATA#0>	Input Channel Number (if applicable)	<p>Andante 16 Value is in the range 0x01 to 0x10 (i.e. 1 to 16 decimal, referencing inputs 1 to 16).</p> <p>Andante 8 Value is in the range 0x01 to 0x08 (i.e. 1 to 8 decimal, referencing inputs 1 to 16).</p>	1
<DATA#1>	Output Channel Number (if applicable)	<p>Andante 16 Value is in the range 0x01 to 0x08 (i.e. 1 to 8 decimal, referencing outputs 1 to 8).</p> <p>Andante 8 Value is in the range 0x01 to 0x04 (i.e. 1 to 4 decimal, referencing outputs 1 to 4).</p>	1
<DATA#2> ... ... <DATA#(N-1)>	Parameters related to the command	Value is in the range 0x00 to 0xFF (i.e. 0 to 255).	N-2

## 4. Control Protocol

The Andante is controlled by commands described in the following.

There is a minimum wait time of 6 milliseconds between end of a command (i.e. last byte sent) and start of a new command. This is required for the Andante to process the command properly (the Andante does not have a multiple commands buffer). If communication via the frontpanel USB is used simultaneously with RS232, the wait time between consecutive commands must be larger than 12 milliseconds (i.e. doubled).

The maximum allowed time between bytes within a command is 200 ms. After this, the Andante detects a communication timeout. If a command send was not completed for any reason, a new command may be started after that 200 ms timeout.

**Note: The ranges in the following refer to the Andante 16 (i.e. 16 inputs and 8 outputs), the Andante 8 uses the same protocol but the ranges will be correspondingly reduced to 8 inputs and 4 outputs.**

**Note: Input or Output Channel Number (Data#0 and Data#1 respectively) if not used must be leaved to 0x01.**

## 5. Examples of Control Protocol Usage

The examples in this section illustrate how to send via RS232 the most common mixer commands.

### 5.1. Preset Change

To recall a preset, send the following to the Andante:

0xAA, 0xAA, 0x09, 0x04, 0x00, 0x01, 0x01, <Preset Number>, 0x00

<Preset Number> is in the range 0x00 to 0x13 (0 to 19 decimal).

### 5.2. Master Volume

To control the output master volume, send the following to the Andante:

0xAA, 0xAA, 0x09, 0x04, 0x03, 0x01, 0x01, <Master\_Volume>, 0x00

<Master\_Volume> is in the range 0x00 to 0x8C (0 to 140 decimal, 0 is -60dB, 120 is 0dB, 140 is +10dB, 0.5dB increments).



## 5.3. Input Channel On/Off

To control an input channel on/off status, send the following to the Andante:

`0xAA, 0xAA, 0x09, 0x00, 0x00, <Input Channel Number>, 0x01, <On/Off>, 0x00`

<Input Channel Number> is in the range 0x01 to 0x10 (i.e. 1 to 16 decimal, referencing inputs 1 to 16).

< On/Off > is 0x02 for channel on, 0x01 for channel off.

## 5.4. Input Channel Level

To control an input channel level, send the following to the Andante:

`0xAA, 0xAA, 0x09, 0x00, 0x01, <Input Channel Number>, 0x01, <Level>, 0x00`

<Input Channel Number> is in the range 0x01 to 0x10 (i.e. 1 to 16 decimal, referencing inputs 1 to 16).

<Level> is in the range 0x00 to 0x8C (0 to 140 decimal, 0 is -60dB, 120 is 0dB, 140 is +10dB, 0.5dB increments).

## 5.5. Output Channel On/Off

To control an output channel on/off status, send the following to the Andante:

`0xAA, 0xAA, 0x09, 0x01, 0x00, 0x01, <Output Channel Number>, <On/Off>, 0x00`

<Output Channel Number> is in the range 0x01 to 0x08 (i.e. 1 to 8 decimal, referencing outputs 1 to 8).

<On/Off> is 0x02 for channel on, 0x01 for channel off.

## 5.6. Output Channel Level

To control an output channel level, send the following to the Andante:

`0xAA, 0xAA, 0x09, 0x01, 0x01, 0x01, <Output Channel Number>, <Level>, 0x00`

<Output Channel Number> is in the range 0x01 to 0x08 (i.e. 1 to 8 decimal, referencing outputs 1 to 8).

<Level> is in the range 0x00 to 0x8C (0 to 140 decimal, 0 is -60dB, 120 is 0dB, 140 is +10dB, 0.5dB increments).

## 5.7. Matrix Crosspoint On/Off

To control a matrix crosspoint on/off status, send the following to the Andante:

0xAA, 0xAA, 0x09, 0x02, 0x00, <Input Channel Number>, <Output Channel Number>, <On/Off>, 0x00

<Input Channel Number> is in the range 0x01 to 0x10 (i.e. 1 to 16 decimal, referencing inputs 1 to 16).

<Output Channel Number> is in the range 0x01 to 0x08 (i.e. 1 to 8 decimal, referencing outputs 1 to 8).

<On/Off> is 0x02 for crosspoint on, 0x01 for crosspoint off.

## 5.8. Matrix Crosspoint Level

To control a matrix crosspoint level, send the following to the Andante:

0xAA, 0xAA, 0x09, 0x02, 0x01, <Input Channel Number>, <Output Channel Number>, <Level>, 0x00

<Input Channel Number> is in the range 0x01 to 0x10 (i.e. 1 to 16 decimal, referencing inputs 1 to 16).

<Output Channel Number> is in the range 0x01 to 0x08 (i.e. 1 to 8 decimal, referencing outputs 1 to 8).

<Level> is in the range 0x00 to 0x8C (0 to 140 decimal, 0 is -60dB, 120 is 0dB, 140 is +10dB, 0.5dB increments).

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AVE mbH  
Gustav-Rau-Straße, 6  
74321 - Bietigheim-Bissingen  
Germany

Telefon: +49 (0) 7142-78879-10  
Fax: +49 (0) 7142-78879-18

[www.ave-stuttgart.com](http://www.ave-stuttgart.com)  
[info@ave-stuttgart.de](mailto:info@ave-stuttgart.de)