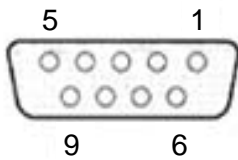


Outlaw Audio RS232 Communication Protocol

Application model : Model 990

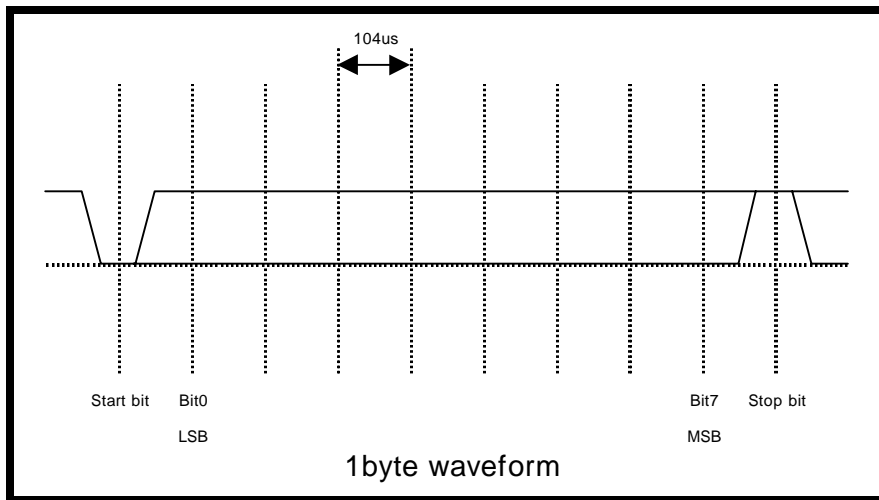
1. Connection



- Pin 1 : NC
- Pin 2 : TxD
- Pin 3 : RxD
- Pin 5 : Common(GND)
- Pin 4, 6, 7, 8, 9 : NC

2. Communication format

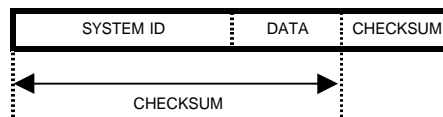
- Communication speed : 9600BPS
- Character length : 8bits
- Parity Bit : None
- Error check : Checksum
- Start bit : 1bit("0")
- Stop bit : 1bit("1")
- Bit length : 104us



3. Message Structure

A. COMMAND :

The message sent to a system(Model 990) from a controller. It is consist of 4bytes.



a. SYSTEM ID : 0x8345

The message started with this code is a command for controlling our system.

b. CHECKSUM :

8bits beneath sum of all data from SYSTEM ID to DATA.

c. DATA :

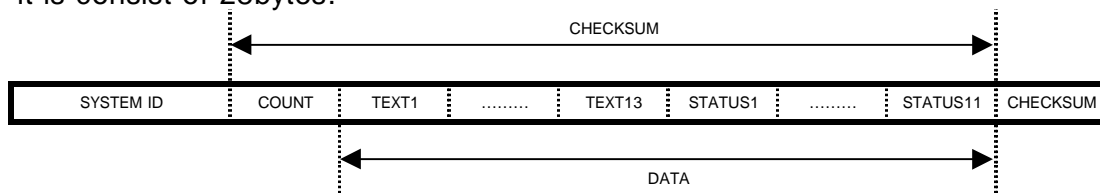
DATA	OPERATION
0x01	Power On
0x02	Standby On
0x03	"TUNER" input select
0x04	"CD" input select
0x05	"AUX" input select
0x06	"PHONO" input select
0x07	"DVD" input select
0x08	"VCR1" input select
0x09	"VCR2" input select
0x0a	"VCR3" input select
0x0b	"VCR4" input select
0x0c	"VCR5" input select
0x0d	"TAPE" input select
0x0e	7.1ch direct input select On/Off
0x0f	Master volume up
0x10	Master volume down
0x11	Main mute On/Off
0x12	Reserved
0x13	Reserved
0x14	Reserved
0x15	OSD On/Off
0x16	Reserved
0x17	Cursor move up
0x18	Cursor move down
0x19	Cursor move left
0x1a	Cursor move right
0x1b	Sleep On, sleep time adjust and Off
0x1c	System display dimmer, Off and On
0x1d	Reserved
0x1e	Reserved
0x1f	Test tone
0x20	Reserved
0x21	Reserved
0x22	Reserved
0x23	Reserved
0x24	Reserved
0x25	Reserved
0x26	Digital/Analog input select
0x27	Select Stereo mode
0x28	Surround mode select up.
0x29	Surround mode select down
0x2a	Reserved
0x2b	Reserved
0x2c	Reserved
0x2d	Reserved
0x2e	Reserved
0x2f	Tuner preset No. 0
0x30	Tuner preset No. 1

-Outlaw Audio RS232 protocol-

DATA	OPERATION
0x31	Tuner preset No. 2
0x32	Tuner preset No. 3
0x33	Tuner preset No. 4
0x34	Tuner preset No. 5
0x35	Tuner preset No. 6
0x36	Tuner preset No. 7
0x37	Tuner preset No. 8
0x38	Tuner preset No. 9
0x39	Tuner Preset scan
0x3a	Tuner preset up
0x3b	Tuner preset down
0x3c	Tuner tune up
0x3d	Tuner tune down
0x3e	OSD Enter
0x3f	Multi-Room On/Off
0x40	Reserved
0x41	Multi-Room volume up
0x42	Multi-Room volume down
0x43	Multi-Room mute On/Off
0x44	Multi-Room "TUNER" input select
0x45	Multi-Room "CD" input select
0x46	Multi-Room "AUX" input select
0x47	Multi-Room "PHONO" input select
0x48	Multi-Room "DVD" input select
0x49	Multi-Room "VIDEO1" input select
0x4a	Multi-Room "VIDEO2" input select
0x4b	Multi-Room "VIDEO3" input select
0x4c	Multi-Room "VIDEO4" input select
0x4d	Multi-Room "VIDEO5" input select
0x4e	Reserved
0x4f	Reserved
0x50	Reserved
0x51	Reserved
0x52	Reserved
0x53	EVENT request (In the case of check sum error, etc. .)
0x54	Master Volume Level : Low (-40dB)
0x55	Master Volume Level : Middle (-10dB)
0x56	Master Volume Level : High (+5dB)

B. EVENT :

The message sent to a controller from a system(Model 990).
 It includes most of system status
 and is sent to a controller each time the status of system is changed.
 It is consist of 28bytes.



a. SYSTEM ID :
 0x8345.

-Outlaw Audio RS232 protocol-

b. COUNT :

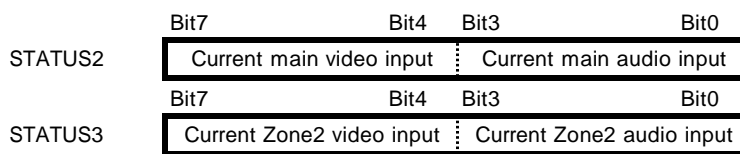
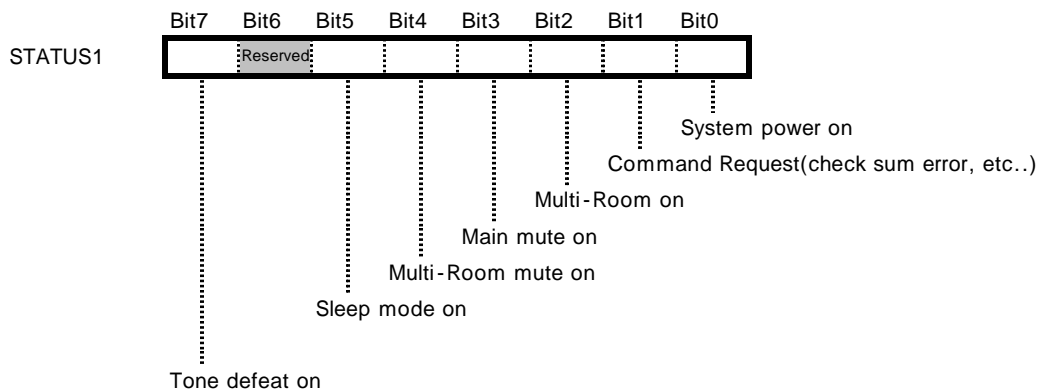
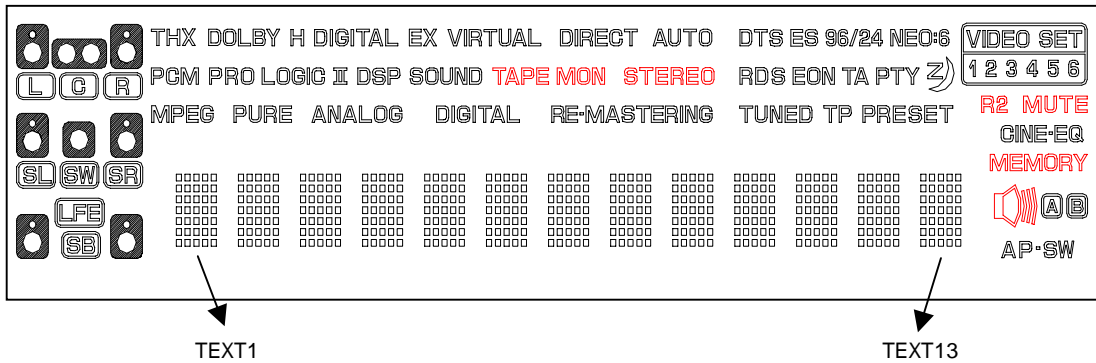
The Number of bytes in the DATA field.

c. CHECKSUM :

8bits beneath sum of all data from COUNT to STATUS11.

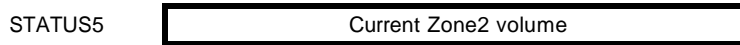
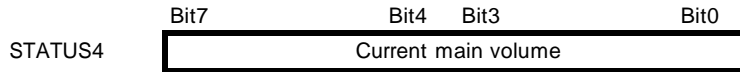
d. DATA

TEXT1 ~ TEXT13 are ascii characters and the very same characters displayed on fluorescent display of our system.

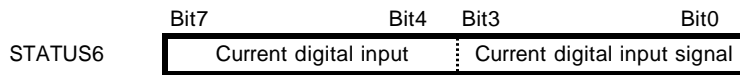


- 0x7 : VIDEO1
- 0x8 : VIDEO2
- 0x9 : VIDEO3
- 0xa : VIDEO4
- 0xb : DVD
- 0xc : VIDEO5
- 0xd : VIDEO DIRECT
- 0x0 : FM
- 0x1 : AM
- 0x2 : TUNER
- 0x4 : CD
- 0x5 : AUX
- 0x6 : PHONO
- 0x7 : DVD
- 0x8 : VIDEO1
- 0x9 : VIDEO2
- 0xa : VIDEO3
- 0xb : VIDEO4
- 0xc : VIDEO5
- 0xd : TAPE
- 0xe : 7.1CH DIRECT

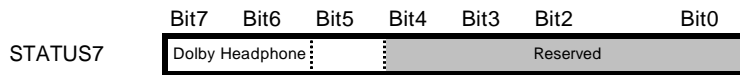
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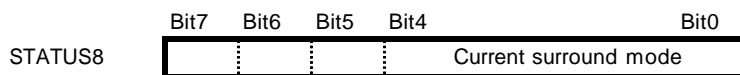
0 : -76dB, 1 : -75dB,, 89 : 13B, 90 : 14dB



- | | |
|-----------------|------------------------|
| 0x0 : Analog | 0x0 : None |
| 0x1 : Coaxial 1 | 0x1 : PCM |
| 0x2 : Coaxial 1 | 0x2 : DOLBY DIGITAL |
| 0x3 : Optical 1 | 0x3 : DOLBY DIGITAL EX |
| 0x4 : Optical 2 | 0x4 : DTS |
| 0x5 : Optical 3 | 0x5 : DTS 96/24 |
| 0x6 : Optical 4 | 0x6 : DTS ES MATRIX |
| 0x7 : Optical 5 | 0x7 : DTS ES DISCRETE |
| 0x8 : USB | 0x8 : MPEG |



- 00 : DH off
 01 : DH1
 10 : DH2
 11 : DH3
 Bypass Mode



- | | | | |
|------------------------------|--------------------------|------------------------|---------------------------------|
| Dolby Pro Logic IIx Music On | Dolby Virtual Speaker On | 0x00 : Stereo(Downmix) | 0x0d : Matrix |
| Dolby Pro Logic IIx Movie On | | | 0x0e : Dolby Pro Logic II Movie |
| | | | 0x0f : Dolby Pro Logic II Music |
| | | | 0x10 : Bypass |
| | | | 0x11 : DTS Neo:6 Cinema |
| | | | 0x12 : DTS Neo:6 Music |
| | | | 0x13 : Dolby Digital |
| | | | 0x14 : Dolby Digital EX |
| | | | 0x15 : DTS |
| | | | 0x16 : DTS ES Matrix |
| | | | 0x17 : DTS ES Discrete |
| | | | 0x18 : MPEG |
| | | | 0x19 : None |
| | | | 0x1a : DTS + NEO:6 |

-Outlaw Audio RS232 protocol-

