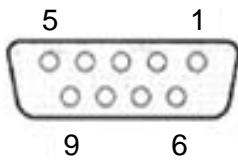


# Sherwood RS232 Communication Protocol

Application model : P-965/R-965/R-865

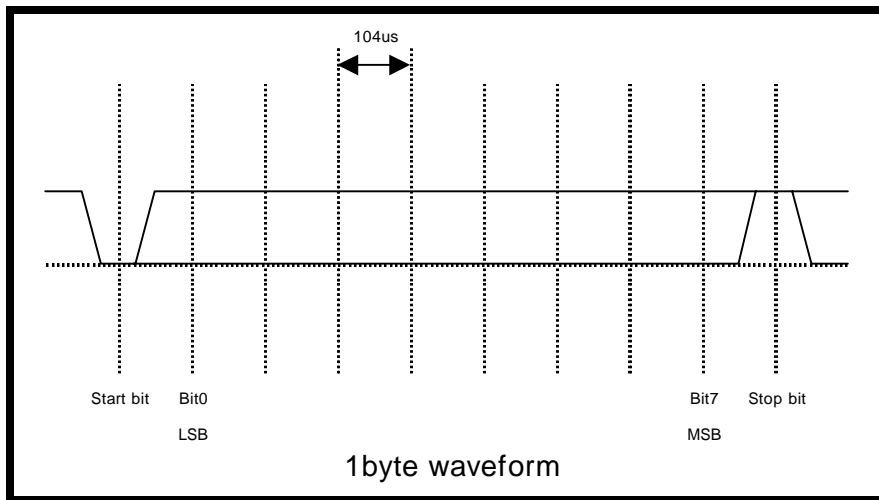
## 1. Connection



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

## 2. Communication format

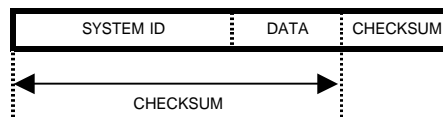
- Communication speed : 9600BPS
- Character length : 8bits
- Parity Bit : None
- Error check : Checksum
- Start bit : 1bit("0")
- Stop bit : 1bit("1")
- Bit length : 104us



## 3. Message Structure

### A. COMMAND :

The message sent to a system(P-965/R-965/R-865) 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 :*

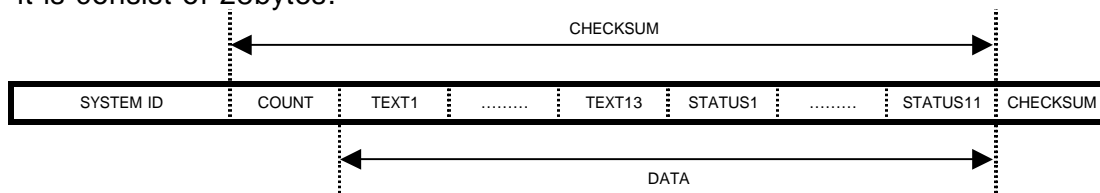
DATA	OPERATION
0x01	Power On
0x02	Standby On
0x03	"TUNER" input select
0x04	"CD" input select
0x05	"AUX" input select
0x06	"PHONO" input select
0x07	"VCR1" input select
0x08	"VCR2" input select
0x09	"VCR3" input select
0x0a	"VCR4" input select
0x0b	"VCR5" input select
0x0c	"VCR6" input select
0x0d	"TAPE MONITOR" input select On/Off
0x0e	8ch(or 7ch, 6ch) direct input select On/Off
0x0f	Master volume up
0x10	Master volume down
0x11	Main mute On/Off
0x12	Channel select
0x13	Channel volume, adjust up
0x14	Channel volume, adjust down
0x15	OSD On/Off
0x16	OSD cursor return
0x17	OSD Cursor move up
0x18	OSD Cursor move down
0x19	OSD Cursor move left
0x1a	OSD Cursor move right
0x1b	Sleep On, sleep time adjust and Off
0x1c	System display dimmer, Off and On
0x1d	Surround back speaker mode(none, 1ch, 2ch) select
0x1e	Surround speaker mode(A, B, A+B) select
0x1f	Test tone On/Off
0x20	Decoding mode change
0x21	"DOLBY" decoding mode select
0x22	"DTS" decoding mode select
0x23	"MPEG" decoding mode select
0x24	"PCM" decoding mode select
0x25	Pure On/Off
0x26	Digital/Analog input select
0x27	Stereo(Downmix) On
0x28	Surround mode select up.
0x29	Surround mode select down
0x2a	Pro Logic II(x) Movie surround mode On
0x2b	Pro Logic II(x) Music surround mode On
0x2c	Pro Logic II(x) Music parameter adjust menu on and toggle
0x2d	Dts Neo:6 Cinema surround mode on
0x2e	Dts Neo:6 Music surround mode on
0x2f	Tuner preset No. 0
0x30	Tuner preset No. 1

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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 or Memory
0x3f	Room2 On/Off
0x40	Reserved
0x41	Room2 volume up
0x42	Room2 volume down
0x43	Room2 mute On/Off
0x44	Room2 "TUNER" input select
0x45	Room2 "CD" input select
0x46	Room2 "AUX" input select
0x47	Room2 "PHONO" input select
0x48	Room2 "VIDEO1" input select
0x49	Room2 "VIDEO2" input select
0x4a	Room2 "VIDEO3" input select
0x4b	Room2 "VIDEO4" input select
0x4c	Room2 "VIDEO5" input select
0x4d	Room2 "VIDEO6" input select
0x4e	RDS Display mode select
0x4f	RDS Program type select
0x50	RDS search
0x51	EON PTY
0x52	EON TA
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(P-965/R-965/R-865). 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.

**b. COUNT :**

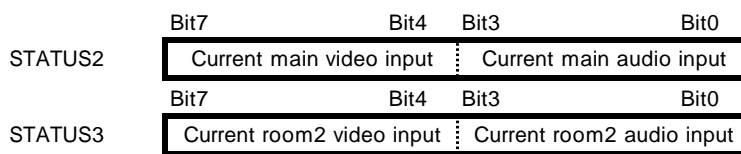
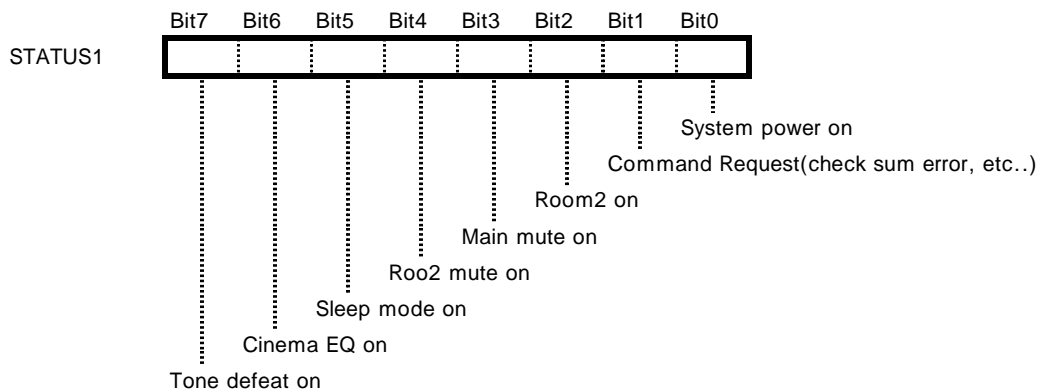
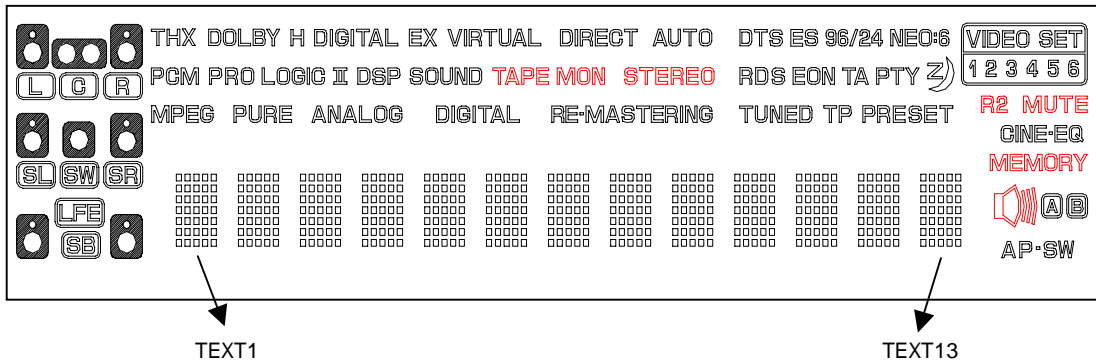
The Number of bytes in the DATA field.

**c. CHECKSUM :**

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

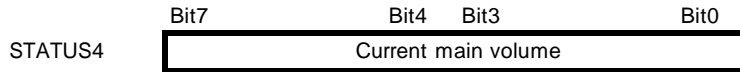
**d. DATA**

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

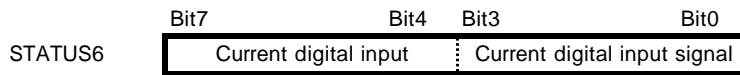


- 0x7 : VIDEO1
- 0x8 : VIDEO2
- 0x9 : VIDEO3
- 0xa : VIDEO4
- 0xb : VIDEO5
- 0xc : VIDEO6
- 0xd : VIDEO DIRECT
- 0x0 : FM
- 0x1 : AM
- 0x2 : TUNER
- 0x4 : CD
- 0x5 : AUX
- 0x6 : PHONO
- 0x7 : VIDEO1
- 0x8 : VIDEO2
- 0x9 : VIDEO3
- 0xa : VIDEO4
- 0xb : VIDEO5
- 0xc : VIDEO6
- 0xd : TAPE MONITOR
- 0xe : 8CH DIRECT

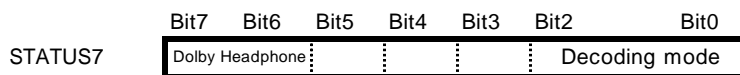
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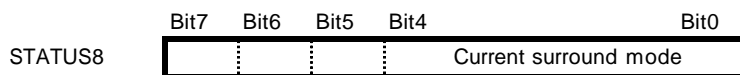
0 : -70dB, 1 : -69dB, ....., 89 : 19dB, 90 : 20dB



- |                 |                        |
|-----------------|------------------------|
| 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             | 0x0 : Analog        |
| 01 : DH1                | 0x1 : Auto          |
| 10 : DH2                | 0x2 : Dolby Digital |
| 11 : DH3                | 0x3 : DTS           |
| Digital re-mastering on | 0x4 : MPEG          |
| Pure audio on           | 0x5 : PCM           |
| Decoding mode mismatch  |                     |



- |                              |                        |                                 |
|------------------------------|------------------------|---------------------------------|
| Dolby Virtual Speaker On     | 0x00 : Stereo(Downmix) | 0x0d : Matrix                   |
| Dolby Pro Logic IIx Movie On | 0x01 : Theater         | 0x0e : Dolby Pro Logic II Movie |
| Dolby Pro Logic IIx Music On | 0x02 : Movie           | 0x0f : Dolby Pro Logic II Music |
|                              | 0x03 : Hall1           | 0x10 : Bypass                   |
|                              | 0x04 : Hall2           | 0x11 : DTS Neo:6 Cinema         |
|                              | 0x05 : Stadium         | 0x12 : DTS Neo:6 Music          |
|                              | 0x06 : Church          | 0x13 : Dolby Digital            |
|                              | 0x07 : Club1           | 0x14 : Dolby Digital EX         |
|                              | 0x08 : Club2           | 0x15 : DTS                      |
|                              | 0x09 : Arena1          | 0x16 : DTS ES Matrix            |
|                              | 0x0a : Arena2          | 0x17 : DTS ES Discrete          |
|                              | 0x0b : Game            | 0x18 : MPEG                     |
|                              | 0x0c : 4Ch Stereo      | 0x19 : None                     |
|                              |                        | 0x1a : DTS + NEO:6              |

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