

Commandes API – RS232

Subject	Server vs Display Protocol Using UART
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Project	
Version	3.00
Remarks	This document is for Internal Use.

Abstract

This document describes Server vs Display Serial Protocol using RS232C.

Keywords

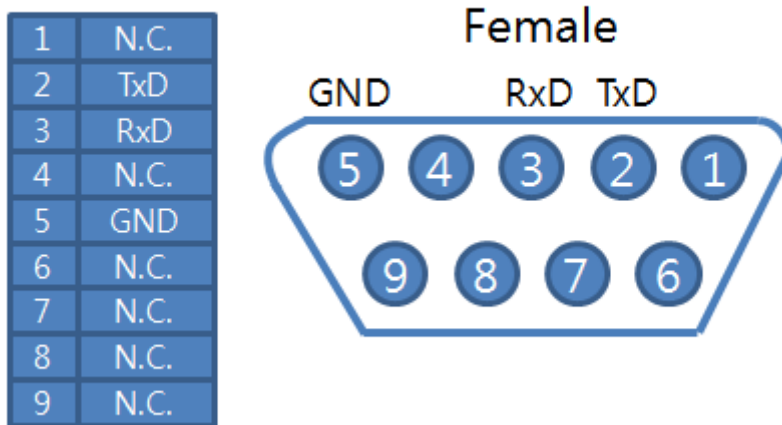
Contributors

1. Introduction

This document represents simple UART protocol for controlling system operation using RS232C.

2. Communication Protocol

RS232C Pin Map



communication parameter

baud rate : 115200

data : 8

parity : NONE

stop bit : 1

communication general spec

- ID should show hexadecimal value of assigned ID.
- ID should be set on menu of the display
- If you want to control every mechanism connected with Serial Cable regardless of its ID, set ID to « 0x00 » and send commands. Then each SET will follow commands but it will not respond without ACK.
- Don't use 0x00, 0x8A(138) and 0xA9(168) for Set ID.

Transmission format

Start	Command	ID	Data	End
0xA9	0XX		0XX	0x8A

For example Power On & ID = 0x11

Start	Command	ID	Data	End
0xA9	0x11		0x01	0x8A

→

Start	Command	ID	Data	End
0xA9	0x11	0x01	0x01	0x8A

3. Command Detailed Explanation

- Power Control

- Function

RS232 Controller turns display power On/Off.

- Get Power On/Off Status

Start	Command	ID	Data	End
0xA9	0x11		0xAA	0x8A

- Set Power On/Off

Start	Command	ID	Data 1	End
0xA9	0x11		Power	0x8A

Power : Power code to be set on display.

0x1	Power On
0x0	Power Off

- Ack

Start	Ack/Nak	ID	r-CMD	Data	End
0xA9	'A'		0x11	Power	0x8A

'A' = 0x41

Power : Power code to be set on display.

0x1	Power On
0x0	Power Off

- Nak

Start	Ack/Nak	ID	r-CMD	Data 1	End
0xA9	'N'		0x11	ERR	0x8A

'N' = 0x4E

ERR :

1	Invalid Command
2	Invalid Data
0xFF	Etc

- **Panel Back Light Unit Control**

- **Function**

RS232 Controller turns display panel BLU power On/Off.

- **Get BLU Power On/Off Status**

Start	Command	ID	Data	End
0xA9	0x12		0xAA	0x8A

- **Set BLU Power On/Off**

Start	Command	ID	Data 1	End
0xA9	0x12		BLU Power	0x8A

BLU Power : BLU Power code to be set on display.

0x1	Power On
0x0	Power Off

- **Ack**

Start	Ack/Nak	ID	r-CMD	Data 1	End
0xA9	'A'		0x12	BLU Power	0x8A

'A' = 0x41

Power : Power code to be set on display.

0x1	Power On
0x0	Power Off

- **Nak**

Start	Ack/Nak	ID	r-CMD	Data 1	End
0xA9	'N'		0x12	ERR	0x8A

'N' = 0x4E

ERR :

1	Invalid Command
2	Invalid Data
0xFF	Etc

- **Volume Control**

- **Function**

Personal Computer changes volume of display

- **Get Volume Status**

Start	Command	ID	Data	End
0xA9	0x13		0xAA	0x8A

- **Set Volume**

Start	Command	ID	Data 1	End
0xA9	0x13		Volume	0x8A

Volume : Volume value code (0x0 (0) ~ 0x64 (100)) to be set on display.

- **Ack**

Start	Ack/Nak	ID	r-CMD	Data	End
0xA9	'A'		0x13	Volume	0x8A

'A' = 0x41

Volume : Same as above

- **Nak**

Start	Ack/Nak	ID	r-CMD	Data 1	End
0xA9	'N'		0x13	ERR	0x8A

'N' = 0x4E

ERR :

1	Invalid Command
2	Invalid Data
0xFF	Etc

- **Mute Control**

- **Function**

- RS232 Controller set mute On/Off.

- **Get Mute On/Off Status**

Start	Command	ID	Data	End
0xA9	0x14		0xAA	0x8A

- **Set Mute On/Off**

Start	Command	ID	Data	End
0xA9	0x14		Mute	0x8A

Mute : Mute code to be set on display

1	Mute ON
0	Mute OFF

- **Ack**

Start	Ack/Nak	ID	r-CMD	Data1	End
0xA9	'A'		0x14	Mute	0x8A

'A' = 0x41

Mute : Same as above

- **Nak**

Start	Ack/Nak	ID	r-CMD	Data	End
0xA9	'N'		0x14	ERR	0x8A

'N' = 0x4E

ERR :

1	Invalid Command
2	Invalid Data
0xFF	Etc

- **Input Source Control**

- **Function**

RS232 Controller changes input source of display.

- **Get Input Source Status**

Start	Command	ID	Data	End
0xA9	0x15		0xAA	0x8A

- **Set Input Source**

Start	Command	ID	Data	End
0xA9	0x15		Input	0x8A

Input : Input source code to be set on display.

Data	Input
TV	0x00
AV1	0x01
Component 1	0x03
VGA	0x04
VGA1	0x14
VGA2	0x24
VGA3	0x34
HDMI 1	0x05
HDMI 2	0x06
HDMI 3	0x07
Inside PC	0x09
USB	0x0B

- **Ack**

Start	Ack/Nak	ID	r-CMD	Data	End
0xA9	'A'		0x15	Input	0x8A

'A' = 0x41

Input : Same as above

Nak

Start	Ack/Nak	ID	r-CMD	Data	End
0xA9	'N'		0x15	ERR	0x8A

'N' = 0x4E

ERR :

1	Invalid Command
2	Invalid Data
0xFF	Etc

- Remote Key

- Function

- Command for same thing with remote controller.

- Command remote key

Start	Command	ID	Data	End
0xA9	0x16		Key Code	0x8A

Key Code : Remote key code as Annex B.

- Ack

Start	Ack/Nak	ID	r-CMD	Data	End
0xA9	'A'		0x16	Key Code	0x8A

Key Code : Same as annex B.

- Nak

Start	Ack/Nak	ID	r-CMD	Data	End
0xA9	'N'		0x16	ERR	0x8A

'N' = 0x4E

ERR :

1	Invalid Command
2	Invalid Data
0xFF	Etc

- **Key Lock**

- **Function**

RS232 Controller set Key Lock On/Off.

- **Get Key Lock On/Off Status**

Start	Command	ID	Data	End
0xA9	0x17		0xAA	0x8A

- **Set Key Lock On/Off**

Start	Command	ID	Data	End
0xA9	0x17		Lock	0x8A

Lock : Key Lock code to be set on display

1	Key Lock ON
0	Key Lock OFF

- **Ack**

Start	Ack/Nak	ID	r-CMD	Data1	End
0xA9	'A'		0x17	Lock	0x8A

'A' = 0x41

Lock : Same as above

- **Nak**

Start	Ack/Nak	ID	r-CMD	Data	End
0xA9	'N'		0x17	ERR	0x8A

'N' = 0x4E

ERR :

1	Invalid Command
2	Invalid Data
0xFF	Etc

- Annex A

No.	Command Type	Command	Value Range
1	Power control	0x11	
2	BLU Power Control	0x12	0x0 ~ 0x1
3	Volume control	0x13	0x0 ~ 0x64
4	Mute control	0x14	0x0 ~ 0x1
5	Input control	0x15	Input source
6	Remote control	0x16	Remote Key value

- Annex B

Key Name	Key Code	Description
RC_POWER	0xD7	Power
RC_NUM0	0xD9	Number 0
RC_NUM1	0x95	Number 1
RC_NUM2	0x99	Number 2
RC_NUM3	0x9D	Number 3
RC_NUM4	0xD6	Number 4
RC_NUM5	0xDA	Number 5
RC_NUM6	0xDE	Number 6
RC_NUM7	0x96	Number 7
RC_NUM8	0x9A	Number 8
RC_NUM9	0x9E	Number 9
RC_CH_PRE	0xDD	Previous Channel
RC_MENU	0x84	Menu
RC_EXIT	0xD4	Exit
RC_CURSOR_UP	0x92	Cursor Up
RC_CURSOR_DOWN	0xD8	Cursor Down
RC_CURSOR_RIGHT	0x9F	Cursor Right
RC_CURSOR_LEFT	0x97	Cursor Left
RC_ENTER	0x9B	Enter
RC_COLOR_RED	0xB2	Color Red
RC_COLOR_GREEN	0xB3	Color Green
RC_COLOR_YELLOW	0xB4	Color Yellow
RC_COLOR_BLUE	0xB5	Color Blue
RC_MUTE	0xDF	Audio Mute
RC_VOL_UP	0x83	Volume Up
RC_VOL_DN	0x86	Volume Down
RC_CH_UP	0x80	Channel Up
RC_CH_DN	0x8E	Channel Down

RC_ARC	0x81	Screen Size
RC_PSM	0xC3	Picture Mode
RC_SSM	0xC2	Sound Mode
RC_SLEEP	0xCE	Sleep Timer
RC_INFO	0xB7	Program Information
RC_STILL	0xB8	Picture Freeze
RC_TV_VIDEO	0xC0	Input
RC_USB	0xBB	Discrete input USB
RC_TVRF	0xC7	Discrete Input RF
RC_AV1	0xC6	Discrete Input AV1
RC_YCBCR1	0xC4	Discrete Input Component1
RC_RGB1	0xCB	Discrete Input RGB1
RC_HDMI1	0xCA	Discrete Input HDMI1
RC_HDMI2	0xC9	Discrete Input HDMI2
RC_HDMI3	0xC8	Discrete Input HDMI3
RC_HDMI4	0xB1	Discrete Input HDMI4
RC_DP	0xB9	Display Port
RC_OPS	0xBA	OPS
RC_HOME	0xBC	HOME
RC_VOL_MUTE_ON	0x60	Discrete Volume Mute On
RC_VOL_MUTE_OFF	0x61	Discrete Volume Mute Off