



- ◆ **LedSync820C open some RS232 control commands, user can use these commands to program a suitable software for your application projection**

## I. RS232 Serial Communication Protocol

Baud rate: 4800  
 No parity  
 8 Data bit  
 1 Stop bit

## II. RS232 Command Format

Each command consists of 10 character strings, all of which start with "zz" and end with "y". "x" provides no meaning. For example: "zzmdxxxxxy" means switching input signal to **V1**.

## III. Some Control Commands of LedSync820C

### 1) Select input signals

Command	Read/Write	Definition
"zzmdxxxxxy"	Write	Switch input signal to <b>V1</b>
"zxmexxxxxy"	Write	Switch input signal to <b>V2</b>
"zzmfxxxxxy"	Write	Switch input signal to <b>V3</b>
"zzmgxxxxxy"	Write	Switch input signal to <b>V4</b>
"zzmixxxxxy"	Write	Switch input signal to <b>Y/C</b> (S_Video)
"zzmlxxxxxy"	Write	Switch input signal to <b>YPbPr</b>
"zzmkxxxxxy"	Write	Switch input signal to <b>VGA</b>
"zzmjxxxxxy"	Write	Switch input signal to <b>DVI</b>

### 2) Read current input signal source

command	Read/Write	Return value	Definition
"zzapjxxxxy"	Read	1	Current signal is: <b>V1</b>
		2	Current signal is: <b>V2</b>
		3	Current signal is: <b>V3</b>
		4	Current signal is: <b>V4</b>
		5	Current signal is: <b>Y/C</b> (S_Video)
		6	Current signal is: <b>DVI</b>
		7	Current signal is: <b>VGA</b>
		8	Current signal is: <b>YPbPr</b>

### 3) Read status of current input signal source

command	Read/Write	Return value	Definition
"zzaplxxxxy"	Read	9	Current input signal is valid
		0	No valid signal input

### 4) Select image brightness

command	Read/Write	Definition
"zzraabtaxy"	Write	Output image brightness <b>BRT</b> = 8
"zzraabtbxy"	Write	Output image brightness <b>BRT</b> = 7
"zzraabtcxy"	Write	Output image brightness <b>BRT</b> = 6
"zzraabtdxy"	Write	Output image brightness <b>BRT</b> = 5
"zzraabtexy"	Write	Output image brightness <b>BRT</b> = 4
"zzraabtfxy"	Write	Output image brightness <b>BRT</b> = 3
"zzraabtgxy"	Write	Output image brightness <b>BRT</b> = 2
"zzraabthxy"	Write	Output image brightness <b>BRT</b> = 1

### 5) Read current image brightness

command	Read/Write	Return value	Definition
"zzapkxxxxy"	Read	11	Output image brightness <b>BRT</b> = 1
		12	Output image brightness <b>BRT</b> = 2
		13	Output image brightness <b>BRT</b> = 3
		14	Output image brightness <b>BRT</b> = 4
		15	Output image brightness <b>BRT</b> = 5
		16	Output image brightness <b>BRT</b> = 6
		17	Output image brightness <b>BRT</b> = 7
		18	Output image brightness <b>BRT</b> = 8

## 6) Image control command

Command	Read/Write	Definition
"zzamaxxxy"	Write	<b>DEF</b> : apply user_defined image parameters
"zzamdxxxxy"	Write	<b>STD</b> : apply standard image parameters
"zzaixxxxxy"	Write	<b>FULL</b> : Displays a full of image on LED screen
"zzajxxxxxy"	Write	<b>PART</b> : Displays a part of image on LED screen

## 7) Read image status

command	Read/Write	Return value	Definition
"zzapnxxxxy"	Read	30	Image is in <b>FULL</b> state
		31	Image is in <b>PART</b> state
"zzappxxxxy"	Read	40	Image is in <b>STD</b> state
		41	Image is in <b>DEF</b> state

#### IV. Some Setup Commands of LedSync820C

1) Write horizontal start value of **LedSync820C** output image: **Hor\_Str**

Command Format	"zaaaa" + Hor_Str3 + Hor_Str2 + Hor_Str1 + "xy"
Read/Write	Write
Description	<b>Hor_Str</b> is a hexadecimal value, <b>Hor_Str</b> = Hor_Str3 × 256 + Hor_Str2 × 16 + Hor_Str1 × 1
Example	<b>Hor_Str</b> = 200 = 0 × 256 + 12 × 16 + 8 × 1
	0 → Hor_Str3 = "a"
	12 → Hor_Str2 = "l"
	8 → Hor_Str1 = "i"
Example Command	"zaaaaalixy"

2) Write horizontal width of **LedSync820C** output image: **Hor\_Width**

Command Format	"zzaba" + Hor_Width3 + Hor_Width2 + Hor_Width1 + "xy"
Read/Write	Write
Description	<b>Hor_Width</b> is a hexadecimal value, <b>Hor_Width</b> = Hor_Width3 × 256 + Hor_Width2 × 16 + Hor_Width1 × 1
Example	<b>Hor_Width</b> = 590 = 2 × 256 + 4 × 16 + 14 × 1
	2 → Hor_Width 3 = "c"
	4 → Hor_Width 2 = "e"
	14 → Hor_Width 1 = "o"
Example Command	"zzabaceoxy"

3) Write vertical start value of **LedSync820C** output image: **Vert\_Str**

Command Format	"zaea" + Vert_Str3 + Vert_Str2 + Vert_Str1 + "xy"
Read/Write	Write
Description	<b>Vert_Str</b> is a hexadecimal value, <b>Vert_Str</b> = Vert_Str 3 × 256 + Vert_Str 2 × 16 + Vert_Str 1 × 1
Example	<b>Vert_Str</b> = 100 = 0 × 256 + 6 × 16 + 4 × 1
	0 → Vert_Str3 = "a"
	6 → Vert_Str2 = "g"
	4 → Vert_Str1 = "e"
Example Command	"zaeaagexy"

4) Write vertical height of **LedSync820C** output image: **Vert\_Height**

Command Format	"zzafa" + Vert_Height3 + Vert_Height2 + Vert_Height1 + "xy"
Read/Write	Write
Description	<b>Vert_Height</b> is a hexadecimal value, $\mathbf{Vert\_Height} = \mathbf{Vert\_Height3} \times \mathbf{256} + \mathbf{Vert\_Height\ 2} \times \mathbf{16} + \mathbf{Vert\_Height\ 1} \times \mathbf{1}$
Example	$\mathbf{Vert\_Height} = 450 = \mathbf{1} \times \mathbf{256} + \mathbf{12} \times \mathbf{16} + \mathbf{2} \times \mathbf{1}$
	$\mathbf{1} \rightarrow \mathbf{Vert\_Height3} = \mathbf{"b"}$
	$\mathbf{12} \rightarrow \mathbf{Vert\_Height2} = \mathbf{"l"}$
Example Command	"zzafablcpy"

5) Execute command, **LedSync820C** will display image in new parameters.

Command Format	"zzahxxxxxy"
Read/Write	Write
Description	Enables <b>LedSync820C</b> to display image in new parameters

6) Read horizontal start value of **LedSync820C** output image: **Hor\_Str**

Command	Read/Write	Return value	Definition
"zzapaxxy"	Read	Hor_Str_L	Read <b>Hor_Str</b> low byte
"zzapbxy"	Read	Hor_Str_H	Read <b>Hor_Str</b> high byte
$\mathbf{Hor\_Str} = \mathbf{Hor\_Str\_H} \times \mathbf{256} + \mathbf{Hor\_Str\_L}$			

7) Read horizontal width of **LedSync820C** output image: **Hor\_Width**

Command	Read/Write	Return value	Definition
"zzapcxxy"	Read	Hor_Width_L	Read <b>Hor_Width</b> low byte
"zzapdxxy"	Read	Hor_Width_H	Read <b>Hor_Width</b> high byte
$\mathbf{Hor\_Width} = \mathbf{Hor\_Width\_H} \times \mathbf{256} + \mathbf{Hor\_Width\_L}$			

8) Read vertical start value of **LedSync820C** output image: **Vert\_Str**

Command	Read/Write	Return value	Definition
"zzapexxxxxy"	Read	Vert_Str_L	Read <b>Vert_Str</b> low byte
"zzapfxxxxy"	Read	Vert_Str_H	Read <b>Vert_Str</b> high byte
<b>Vert_Str = Vert_Str_H × 256 + Vert_Str r_L</b>			

9) Read vertical height of **LedSync820C** output image: **Vert\_Height**

Command	Read/Write	Return value	Definition
"zzapgxxxxy"	Read	Vert_Height_L	Read <b>Vert_Height</b> low byte
"zzaphxxxxy"	Read	Vert_Height_H	Read <b>Vert_Height</b> high byte
<b>Vert_Height = Vert_Height_H × 256 + Vert_Height_L</b>			

## V. Auxiliary Commands

Command	Read/Write	Definition
"zzanxxxxxy"	Write	The command shielding interruption from signal input port, this command ensure RS232 control command is properly executed and free of interruption.
"zzaoxxxxxy"	Write	The command allowing for interruption from signal input port

## VI. Example

The size and location of image to be output on LED screen are setup as below:

- Hor\_Str: 200
- Hor\_Width: 512
- Ver\_Str: 100
- Ver\_Height: 384

It is necessary the following 9 control commands at intervals of minimum 20-100 ms.

Steps	Command	Description
1	"zzanxxxxxy"	Image signal input interruption shield
2	Wait for 20 ms	Wait for 20 ms
3	"zzanxxxxxy"	Image signal input interruption shield
4	Wait for 20 ms	Wait for 20 ms
5	"zzanxxxxxy"	Image signal input interruption shield
6	Wait for 20 ms	Wait for 20 ms
7	"zzaaaamixy"	Horizontal start value: 200
8	Wait for 100 ms	Wait for 100 ms
9	"zzaeaagexy"	Vertical start value: 100
10	Wait for 100 ms	Wait for 100 ms
11	"zzabacaaxy"	Horizontal width: 512
12	Wait for 100 ms	Wait for 100 ms
13	"zzafabiaxy"	Vertical height: 384
14	Wait for 100 ms	Wait for 100 ms
15	"zzahxxxxxy"	Execute new window value
16	Wait for 100 ms	Wait for 100 ms
17	"zzaoxxxxxy"	Allow for interruption from signal input port

For more control commands, please consult the manufacturer. Thank you for using our product!