

◆ LVP919 PC RS232 Serial control command V0.0.2

I RS232 Serial communication protocol

Baud rate: 9600

No parity

8 Data bit

1 Stop bit

II RS232 Command Format

Each command consists of 13 character strings. Defined as:

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT1 2 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|

BYT0: device model number, for LVP919, **BYT0=0x91**;

BYT1: controlled device ID range from 01 to FF total 255 serial numbers, 0x0 means all devices are under control;

BYT2: command address of each control device; refer to (III) Control command part for more Information;

BYT3~BYT11: command parameters;

BYT12: means the model number (0x91) ChkSum or Xor Calculation of front 12 bites data;

Command return:

If device return to send command

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| 91 | 01 | Cmd | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9 | ChkSum |

Means command success;

If return with 0xFF parameter command

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| 91 | 01 | Cmd | XX | FF | FF | FF | FF | FF | FF | FF | FF | ChkSum |

Means command fails, BYT3 means incorrect parameter; refer to (V) return error command for more details;

III LVP919 control command

Take one LVP919 whose serial number is 1 for example, namely BYT1=01.

The commands are showed in hexadecimal.

1、Switching signal selection mode (00): one key switching, Pre.+Take switching

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| 91 | 01 | 00 | XX | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2=00**;

2) **BYT3=0**: one key switching; **BYT3=1**: Pre.+Take switching;

3) **BYT4 to BYT11** no actual meaning, value is 0;

Command example:

“91 01 00 01 00 00 00 00 00 00 00 00 00 91” , Please replace the value of BYT3 with the value corresponding

Descriptions 1) **BYT2=03**

2) **BYT3=0~3**, means the switching time 0/0.5/1.0/1.5 seconds;

3) **BYT6 到 BYT11** no actual meaning, value is 0;

Command example:

“91 01 03 02 00 00 00 00 00 00 00 00 91” , Please replace the BYT3 with the value corresponding to the switching time.

5、 PIP status (04)

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | 04 | XX | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2=04**;

2) **BYT3=00**, Turn off PIP;

BYT3=01, Enter PIP status;

3) **BYT4 到 BYT11** no actual meaning, value is 0;

Command example:

“91 01 04 01 00 00 00 00 00 00 00 00 91” , Please replace the value of BYT3 with the value corresponding to the pip state.

*After executing this command, please read the status of the input/output board every 1 s (determining busy and idle). For details, see (IV). (1).

6、 PIP signal source switching (05)

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | 05 | XX | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2=05**

2) **BYT3=00**, Switch to EXT. channel;

BYT3=01, Switch to DVI2 channel;

BYT3=02, Switch to DVI1 channel;

BYT3=03, Switch to HDMI2 channel;

BYT3=04, Switch to HDMI1 channel;

BYT3=05, Switch to VGA channel;

BYT3=06, Switch to V2 channel;

BYT3=07, Switch to V1 channel;

3) **BYT5 to BYT11**no actual meaning, value is 0;

Command example:

“91 01 05 07 00 00 00 00 00 00 00 00 91” , replace the value of BYT3 with the value of the source.

*This command is valid only in the PIP state;

*Cannot switch to EXT. channel when external expansion module option is "None";

*After executing this command, please read the status of the input/output board every 1 s (determining busy and idle). For details, see (IV). (1).

7、 PIP Mode setup (06)

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|--------|
| 91 | 01 | 06 | XX | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2=06**

- 2) **BYT3=0~3**, means PIP mode 0~3;
- 3) **BYT4 到 BYT11** no actual meaning, value is 0;

Command example:

“91 01 06 02 00 00 00 00 00 00 00 00 91” , Please replace the value of BYT3 with the PIP mode value.

*This command is valid only for PIP status or PIP parameters;

8、 Set the input board brightness (08)

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|--------|
| 91 | 01 | 08 | XX | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2=08**

- 2) **BYT3=0~100**, Image brightness;
- 3) **BYT4 to BYT11** no actual meaning, value is 0;

Command example:

“91 01 08 27 00 00 00 00 00 00 00 00 91” , Please replace the value of BYT3 with the brightness value.

9、 Input board contrast (09)

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|--------|
| 91 | 01 | 09 | XX | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2=09**

- 2) **BYT3=0~100**, Image contrast;
- 3) **BYT4 到 BYT11** no actual meaning, value is 0;

Command example:

“91 01 09 37 00 00 00 00 00 00 00 00 91” , Please replace the value of BYT3 with the contrast value.

10、 Input board color (0A)

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|--------|
| 91 | 01 | 0A | XX | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2=0A**

- 2) **BYT3=0~100**, Image color;

3) **BYT4** 到 **BYT11** no actual meaning, value is 0;

Command example:

“91 01 0A 07 00 00 00 00 00 00 00 00 91” , Please replace the value of BYT3 with the color value.

11、 Output board brightness setup (0B)

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | 0B | XX | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2=0B**;

2) **BYT3=0~32**, Output board brightness;

3) **BYT4** 到 **BYT11** no actual meaning, value is 0;

Command example:

“91 01 0B 17 00 00 00 00 00 00 00 00 91” , Please replace the value of BYT3 with the brightness value.

12、 Set the PIP current mode main and sub image size & position (0E)

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | 0E | XX | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

Descriptions 1) **BYT2=0E**

2) **BYT3=00**, Set the sub image;

BYT3=01, Set the main image;

3) **BYT4**, the high 8-bit of the image horizontal start;

4) **BYT5**, the low 8-bit of the image horizontal start;

5) **BYT6**, Image width high 8-bit;

6) **BYT7**, Image width low 8-bit;

7) **BYT8**, the high 8-bit of the image vertical start;

8) **BYT9**, the low 8-bit of the image vertical start;

9) **BYT10**, Image height high 8-bit ;

10) **BYT11**, Image height low 8-bit;

Command example:

“91 01 0E 00 00 20 03 00 00 40 02 00 91” , Sub-picture size position adjustment;

“91 01 0E 01 00 10 04 00 00 20 03 00 91” , Main screen size position adjustment.

*Please limit the value of the setup:

*The value is even number;

*Horizontal start + image width < (output card input) output resolution maximum width;

*Vertical start+ image height < (output card input) output resolution maximum height.

13、 Display mode setup (10)

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|
|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | |
|----|----|----|----|----|----|----|----|----|----|----|----|--------|
| 91 | 01 | 10 | XX | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2**=10

- 2) **BYT3**=0~3, means display mode 0~3, corresponding to output mosaic parameters;
- 3) **BYT4** 到 **BYT11** no actual meaning, value is 0;

Command example:

“91 01 10 02 00 00 00 00 00 00 00 00 91” , Please replace the value of BYT3 with the display mode value.

14、Output port (11)

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| 90 | 01 | 11 | XX | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2**=11

- 2) **BYT3**=0, 1, 2, 3, means switching to OUT1~OUT4;
- 3) **BYT4** 到 **BYT11** no actual meaning, value is 0;

Command example:

“91 01 11 02 00 00 00 00 00 00 00 00 91” , Please replace the value of BYT3 with the port value.

15、Set the current mode, channel input image size and position (12)

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| 91 | 01 | 12 | 00 | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

Descriptions 1) **BYT2**=12

- 2) **BYT3**=00 Reserved;
- 3) **BYT4**, the high 8-bit of the image horizontal start;
- 4) **BYT5**, the low 8-bit of the image horizontal start;
- 5) **BYT6**, Image width high 8-bit;
- 6) **BYT7**, Image width low 8-bit;
- 7) **BYT8**, the high 8-bit of the image vertical start;
- 8) **BYT9**, the low 8-bit of the image vertical start;
- 9) **BYT10**, Image height high 8-bit ;
- 10) **BYT11**, Image height low 8-bit;

Command example:

“91 01 12 00 00 30 04 00 00 30 03 00 91” , the image size and position adjustment.

*Please limit the value of the set:

* Horizontal start + image width < output card input resolution maximum width;

*Vertical start + image height < output card input resolution maximum height.

16、Set the current mode, channel output image size and position (13)

| | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----------|
| | | | | | | | | | | | | | | | | m |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----------|

Descriptions 1) **BYT2=15;**

1X2 Mode:

Horizontal width: **BYT3- BYT4** (high 8-bit, low 8-bit)

OUT1 height: **BYT5- BYT6** (width high 8-bit, low 8-bit)

OUT2 height: **BYT7- BYT8** (width high 8-bit, low 8-bit)

Command example:

“91 01 15 **04 00 03 00 02 00** 00 00 00 91” , Cell screen size setup.

2X1 Mode:

OUT1Horizontal width: **BYT3- BYT4** (high 8-bit, low 8-bit)

OUT2Horizontal width: **BYT5- BYT6** (width high 8-bit, low 8-bit)

Height: **BYT7- BYT8** (width high 8-bit, low 8-bit)

Command example:

“91 01 15 **04 00 03 00 02 00** 00 00 00 91” , Cell screen size setup.

1X3 Mode:

Horizontal width: **BYT3- BYT4** (high 8-bit, low 8-bit)

OUT1 height: **BYT5- BYT6** (width high 8-bit, low 8-bit)

OUT2 height: **BYT7- BYT8** (width high 8-bit, low 8-bit)

OUT3 height: **BYT9- BYT10** (width high 8-bit, low 8-bit)

Command example:

“91 01 15 **04 00 03 00 02 00 02 00** 00 91” , Cell screen size setup.

3X1 Mode:

OUT1Horizontal width: **BYT3- BYT4** (high 8-bit, low 8-bit)

OUT2Horizontal width: **BYT5- BYT6** (width high 8-bit, low 8-bit)

OUT3Horizontal width: **BYT7- BYT8** (width high 8-bit, low 8-bit)

Height: **BYT9- BYT10** (width high 8-bit, low 8-bit)

Command example:

“91 01 15 **04 00 03 00 02 00 02 00** 00 91” , Cell screen size setup.

1X4 Mode:

Horizontal width: **BYT3- BYT4** (high 8-bit, low 8-bit)

OUT1 height: **BYT5- BYT6** (width high 8-bit, low 8-bit)

OUT2 height: **BYT7- BYT8** (width high 8-bit, low 8-bit)

OUT3 height: **BYT9[7-4], BYT10** (width high 4-bit, low 8-bit)

OUT4 height: **BYT9[3-0], BYT11** (high 4-bit, low 8-bit)

Command example:

“91 01 15 **04 00 03 00 02 00 32 33 22** 91” , Cell screen size setup.

4X1 Mode:

OUT1 Horizontal width: **BYT3- BYT4** (high 8-bit, low 8-bit)

OUT2 Horizontal width: **BYT5- BYT6** (width high 8-bit, low 8-bit)

OUT3 Horizontal width: **BYT7- BYT8** (width high 8-bit, low 8-bit)

OUT4 Horizontal width: **BYT9[7-4], BYT10** (width high 4-bit, low 8-bit)

Height: **BYT9[3-0], BYT11** (width high 4-bit, low 8-bit)

Command example:

“91 01 15 **02 00 03 00 04 00 32 45 34** 91” , Cell screen size setup.

2X2 Mode:

OUT1/3 Horizontal width: **BYT3- BYT4** (high 8-bit, low 8-bit)
 OUT2/4 Horizontal width: **BYT5- BYT6** (width high 8-bit, low 8-bit)
 OUT1/2 height: **BYT7- BYT8** (width high 8-bit, low 8-bit)
 OUT3/4 height: **BYT9- BYT10** (width high 8-bit, low 8-bit)
 Command example:

“91 01 15 03 00 04 00 02 00 03 00 00 91” , Cell screen size setup.

- *Please limit the value of the setup.
- *Unit screen width <output resolution width;
- *Unit screen height <output resolution height.

19、Fast mosaic 2: Set the total size of the LED large screen (16)

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | 16 | 00 | XX | XX | XX | XX | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2=16**;

- 2) **BYT3=00**, Reserved;
- 3) **BYT4**, the high 8-bit of large screen width;
- 4) **BYT5**, the low 8-bit of large screen width;
- 5) **BYT6**, the high 8-bit of large screen width;
- 6) **BYT7**, the low 8-bit of large screen width;
- 7) **BYT8 到 11**, set to 0,reserved;

Command example:

“91 01 16 00 10 00 0F 00 00 00 00 00 91” , Large screen total points setup.

- *Please limit the value of the setup:
- *Large screen width <output resolution width * 4;
- *Large screen height <output resolution height * 4.

20、Fast mosaic 2: Set the unit screen point size position (17)

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | 17 | 00 | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

Descriptions 1) **BYT2=17**

- 2) **BYT3=00**, Reserved;
- 3) **BYT4**, the high 8-bit of unit screen horizontal start ;
- 4) **BYT5**, the low 8-bit of unit screen horizontal start ;
- 5) **BYT6**, the high 8-bit of unit screen width;
- 6) **BYT7**, the low 8-bit of unit screen width;
- 7) **BYT8**, the high 8-bit of unit screen vertical start;
- 8) **BYT9**, the low 8-bit of unit screen vertical start;

9) **BYT10**, the high 8-bit of unit screen height ;

10) **BYT11**, the low 8-bit of unit screen height;

Command example:

“91 01 17 00 00 40 04 00 00 30 03 00 91” , Cell screen size position adjustment.

*Please limit the value of the setup:

*Unit screen horizontal start + unit screen width < large screen width;

*Unit screen vertical start + unit screen height < large screen height;

*Unit screen width < output resolution width;

*Unit screen height < output resolution height.

21、Mosaic automatic calculation (18)

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | 18 | 00 | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

Descriptions 1) **BYT2=18**

2) **BYT3=00, Fast mosaic 1;**

BYT3=01, Fast mosaic 2;

3) **BYT4 to BYT11** no actual meaning, value is 0;

Command example:

“91 01 18 01 00 00 00 00 00 00 00 00 91” , Please replace the value of BYT3 with the mosaic mode value.

22、Input board VGA automatic correction (19)

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | 19 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2=19;**

2) **BYT3 到 BYT11** no actual meaning, value is 0;

Command example:

“91 01 19 00 00 00 00 00 00 00 00 00 91” .

*After the VGA automatic correction, please read the I/O board status every 1 second, refer to (IV). (1).

23、system initialization (1A)

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | 1A | 00 | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

Descriptions 1) **BYT2=1A**

| | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|---|
| | | | | | | | | | | | | | m |
|--|--|--|--|--|--|--|--|--|--|--|--|--|---|

Descriptions 1) **BYT2**=1E;

2) **BYT3**=00, turn off;

BYT3=01, open;

3) **BYT4** 到 **BYT11** no actual meaning, value is 0;

Command example:

“91 01 1E 01 00 00 00 00 00 00 00 00 91” , Replace the value of **BYT3** with the value corresponding to the hot plug.

27、ADC Correction (FC)

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| 91 | 01 | FC | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | ChkSum |

Descriptions 1) **BYT2**=FC

2) **BYT3** 到 **BYT11** no actual meaning, value is 0;

Command example:

“91 01 FC 00 00 00 00 00 00 00 00 91” .

*Switch status, the current picture is V1/V2/VGA and is valid for one-key switching

* ADC correction is used with caution;

IV Command read

Send a read system status command (FE) to read system parameters;

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| 91 | 01 | FE | XX | XX | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ChkSum |

Descriptions 1) **BYT3**=XX, Read parameter 1;

2) **BYT4**=XX, Read parameter 2;

3) **BYT5** 到 **BYT11** no actual meaning, value is 0;

4) Reading device **BYT3**、**BYT4** descriptions:

Command example:

“91 01 FE 00 00 00 00 00 00 00 00 91” , Replace the values of **BYT3** and **BYT4** with the values corresponding to each read command.

1、**BYT3**=00, **BYT4**=00, The controlled device returns 13 read data, meaning status 1;

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| 91 | 01 | FE | 00 | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

A) **BYT3**=00;

B) **BYT4**: the system is busy or not.

=0: busy;

=1: idle;

C) **BYT5**: means system output resolution;

=0: means output resolution 1024x768_60Hz;

- =1: means output resolution 1440x1440_60Hz;
- =2: means output resolution 1280x1024_60Hz;
- =3: means output resolution 1920x1200_60Hz;
- =5: means output resolution 1920x1080_50Hz;
- =6: means output resolution 1920x1080_60Hz;

D) **BYT6:** current source and fade in fade out time

BIT0~BIT3: current source, 0~7 means EXT., DVI2, DVI1, HDMI2, HDMI1, VGA, V2, V1

BIT4~BIT7: fade in fade out time, 0~3means 0~1.5second.

E) **BYT7:** TAKE、PIP signal source

BIT0~BIT3: PIP signal source, 0~7means EXT., DVI2, DVI1, HDMI2, HDMI1, VGA, V2, V1

BIT4~BIT7: Pre-take signal source, 0~7 means EXT., DVI2, DVI1, HDMI2, HDMI1, VGA, V2, V1

F) **BYT8:**

BIT0~BIT3: AD1 Audio configuration

BIT4: DVI Hot plug switch

BIT5~BIT7: Extended input module, 0-no, 1-SDI

G) **BYT9:**

BIT0~BIT3: AD3 Audio configuration

BIT4~BIT7: AD2 Audio configuration

H) **BYT10:**

BIT0~BIT3: 0~6, Means the mosaic mode of fast mosaic 1;

BIT4~BIT7: 0~3, Means PIP mode

I) **BYT11:**

BIT0: Language

=0, English;

=1, Chinese;

BIT1: Switch mode

=0, One key switch;

=1, TAKE switch;

BIT2: status

=0: Switching state

=1: PIP state

BIT3~4: Display mode (0~3)

BIT5~7: Current port (0~3)

2、**BYT3=01, BYT4=00**, The controlled device returns 13 read data, means status 2 (reserved);

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|--------|
| 91 | 01 | FE | 01 | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

A) **BYT3=01;**

3、 **BYT3=02, BYT4=00**, The controlled device returns 13 read data, means the IP address;

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|--------|
| 91 | 01 | FE | 02 | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

- A) **BYT3=02**;
- B) **BYT4**: IPAddress1;
- C) **BYT5**: IPAddress2;
- D) **BYT6**: IPAddress3;
- E) **BYT7**: IPAddress4;
- F) **BYT8** to **BYT11** no actual meaning;

4、 **BYT3=03, BYT4=00**, The controlled device returns 13 read data, means the subnet mask address;

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|--------|
| 91 | 01 | FE | 03 | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

- A) **BYT3=03**;
- B) **BYT4**: subnet mask 1;
- C) **BYT5**: subnet mask 2;
- D) **BYT6**: subnet mask 3;
- E) **BYT7**: subnet mask 4;
- F) **BYT8** to **BYT11** no actual meaning;

5、 **BYT3=04, BYT4=00**, The controlled device returns 13 read data, means the gateway address;

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|--------|
| 91 | 01 | FE | 04 | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

- A) **BYT3=03**;
- B) **BYT4**: gateway 1;
- C) **BYT5**: gateway 2;
- D) **BYT6**: gateway 3;
- E) **BYT7**: gateway 4;
- F) **BYT8** to **BYT11** no actual meaning;

6、 **BYT3=05, BYT4=00**, The controlled device returns 13 read data, means the gateway address;

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|--------|
| 91 | 01 | FE | 05 | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

- A) **BYT3=05**;

| | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|---|
| | | | | | | | | | | | | | m |
|--|--|--|--|--|--|--|--|--|--|--|--|--|---|

- A) **BYT3=09;**
- B) **BYT4:** Horizontal start high-bit;
- C) **BYT5:** Horizontal start low-bit;
- D) **BYT6:** Horizontal width high-bit;
- E) **BYT7:** Horizontal width low-bit;
- F) **BYT8:** Vertical start high-bit;
- G) **BYT9:** Vertical start low-bit;
- H) **BYT10:** Vertical height high-bit;
- I) **BYT11:** Vertical height low-bit;

10、**BYT3=0A, BYT4= XX** (BYT4 bit[1:0]=0~3, Means the port need to be read, BYT4bit[3:2]=0 to 3, means the display mode need to be read. The controlled device returns 13 read data, means the specified image and port output image size and position;

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | FE | 0A | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

- A) **BYT3=0A;**
- B) **BYT4:** Horizontal start high-bit;
- C) **BYT5:** Horizontal start low-bit;
- D) **BYT6:** Horizontal width high-bit;
- E) **BYT7:** Horizontal width low-bit;
- F) **BYT8:** Vertical start high-bit;
- G) **BYT9:** Vertical start low-bit;
- H) **BYT10:** Vertical height high-bit;
- I) **BYT11:** Vertical height low-bit;

11、**BYT3=0B, BYT4= XX**(BYT4 bit[1:0]=0~3, reserved, BYT4bit[3:2]=0~3,means the display mode to be read), the controlled device returns 13 read data,means fast mosaic 2 parameters , LED mosaic screen total size.

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | FE | 0B | XX | XX | XX | XX | XX | XX | XX | XX | ChkSum |

- A) **BYT3=0B;**
- B) **BYT4:** Horizontal width high-bit;
- C) **BYT5:** Horizontal width low-bit;
- D) **BYT6:** Vertical height high-bit;
- E) **BYT7:** Vertical height low-bit;
- F) **BYT8~11:** reserved;

12、**BYT3=0C, BYT4= XX**(BYT4 bit[1:0]=0~3, means the port need to be read, BYT4bit[3:2]=0~3, means the display mode to be read), the controlled device returns 13 read data, means fast mosaic 2 parameters,

unit screen size and position.

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|------------|
| 91 | 01 | FE | 0C | XX | XX | XX | XX | XX | XX | XX | XX | ChkSu m |

- A) **BYT3=0C**;
- B) **BYT4**: Horizontal start high-bit;
- C) **BYT5**: Horizontal start low-bit;
- D) **BYT6**: Horizontal width high-bit;
- E) **BYT7**: Horizontal width low-bit;
- F) **BYT8**: Vertical start high-bit;
- G) **BYT9**: Vertical start low-bit;
- H) **BYT10**: Vertical height high-bit;
- I) **BYT11**: Vertical height low-bit;

13、**BYT3=0D**, **BYT4= XX** (BYT4 bit[1:0]=0~3, Reserved, BYT4bit[3:2]=0~3, Means the display mode that needs to be read. The controlled device returns 13 read data, meaning fast mosaic 1 parameter:

| BYT 0 | BYT 1 | BYT 2 | BYT 3 | BYT 4 | BYT 5 | BYT 6 | BYT 7 | BYT 8 | BYT 9 | BYT1 0 | BYT1 1 | BYT12 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|------------|
| 91 | 01 | FE | 0D | XX | XX | XX | XX | XX | XX | XX | XX | ChkSu m |

1X2 mode:

Horizontal width: **BYT4- BYT5** (high 8-bit, low 8-bit)

OUT1 height: **BYT6- BYT7** (width high 8-bit, low 8-bit)

OUT2 height: **BYT8- BYT9** (width high 8-bit, low 8-bit)

2X1 mode:

OUT1 horizontal width: **BYT4- BYT5** (high 8-bit, low 8-bit)

OUT2 horizontal width: **BYT6- BYT7** (width high 8-bit, low 8-bit)

height: **BYT8- BYT9** (width high 8-bit, low 8-bit)

1X3 mode:

Horizontal width: **BYT4- BYT5** (high 8-bit, low 8-bit)

OUT1 height: **BYT6- BYT7** (width high 8-bit, low 8-bit)

OUT2 height: **BYT8- BYT9** (width high 8-bit, low 8-bit)

OUT3 height: **BYT10- BYT11** (width high 8-bit, low 8-bit)

3X1mode:

OUT1 horizontal width: **BYT4- BYT5** (high 8-bit, low 8-bit)

OUT2 horizontal width: **BYT6- BYT7** (width high 8-bit, low 8-bit)

OUT3 horizontal width: **BYT8- BYT9** (width high 8-bit, low 8-bit)

height: **BYT10- BYT11** (width high 8-bit, low 8-bit)

1X4 mode:

horizontal width: **BYT4- BYT5** (high 8-bit, low 8-bit)

OUT1 height: **BYT6[7-4], BYT7** (width high 4-bit, low 8-bit)

OUT2 height: **BYT6[3-0], BYT8** (width high 4-bit, low 8-bit)

OUT3 height: **BYT9[7-4], BYT10** (width high 4-bit, low 8-bit)

OUT4 height: **BYT9[3-0], BYT11** (high 4-bit, low 8-bit)

4X1 mode:

OUT1 horizontal width: **BYT4- BYT5** (high 8-bit, low 8-bit)

OUT2 horizontal width: **BYT6[7-4], BYT7** (width high 4-bit, low 8-bit)

OUT3 horizontal width: **BYT6[3-0], BYT8** (width high 4-bit, low 8-bit)

OUT4 horizontal width: **BYT9[7-4], BYT10** (width high 4-bit, low 8-bit)

height: **BYT9[3-0], BYT11** (width high 4-bit, low 8-bit)

2X2 mode:

OUT1/3 horizontal width: **BYT4- BYT5** (high 8-bit, low 8-bit)

OUT2/4 horizontal width: **BYT6- BYT7** (width high 8-bit, low 8-bit)

OUT1/2 height: **BYT8- BYT9** (width high 8-bit, low 8-bit)

OUT3/4 height: **BYT10- BYT11** (width high 8-bit, low 8-bit)

V Return error command

If error occurred after receiving command from system, it will return error command, error command shows as following;

| BYT0 | BYT1 | BYT2 | BYT3 | BYT4 | BYT5 | BYT6 | BYT7 | BYT8 | BYT9 | BYT10 | BYT11 | BYT12 |
|------|------|------|------|------|------|------|------|------|------|-------|-------|--------|
| 91 | 01 | FF | XX | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ChkSum |

Descriptions 1) **BYT2=FF**,return to error command;

2) **BYT4=00**, command successful;

=04, command length error;

=05, agreement error;

=06, check bit error;

=07, system busy;

=08, communication confliction;

=09, no input card;

=0A, this input card is a through card;

=0B, input card situation error;

=0C, out of range;

=0D, wrong configuration mode;

3) **BYT5~BYT11=0**;

VI Software design

1. The initial software must configure COM port firstly, network control must setup IP address and port number (7);
2. Test if communication is normal (sending a Read Device Status command to check the return);
3. Then read device basic configuration and current status;
4. Read device basic configure and current status regularly, to judge equipment has finished the operation command sending by software.

