

- ◆ LVP605 software has opened some RS232 control commands
- ◆ The related software Version LVP605 V1.5.4 or above version.

一、RS232 Serial Communication Protocol

Baud rate: 9600

No parity

8 Data bit

1 Stop bit

二、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
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BYT0: device model number. For LVP605 HD processor, **BYT0**=0x05;

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

BYT2: command address of each control device;

when **BYT8**=0 , the equipment under control will not return the data commands of the 13 bites.

When **BYT2**=1 , the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation.

BYTE3~BYTE11: command parameters;

BYT12: **BYT12**: means the model number 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
05	01	Cmd	P1	P2	P3	P4	P5	P6	P7	P8	P9	ChkSum

Means command success.;

It it 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
05	01	Cmd	FF	FF	FF	FF	FF	FF	FF	FF	FF	ChkSum

Means command fail.

三、LVP605 control command

Take one LVP605 whose serial number is 1 for example, namely **BYT1**=01. All devices receive commands under cascade connecting.

The commands are showed in radix 16.

1、switch input signals (00)

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
05	01	00	XX	00	00	00	00	00	00	00	00	ChkSum

Instructions 1) **BYT2=00**, the equipment under control will not return the data commands of the 13 bites.

BYT2=80, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation.

- 2) **BYT3=00**, Switch to V1 channel;
BYT3=01, Switch to V2 channel;
BYT3=02, Switch to V3 channel;
BYT3=04, Switch to S-VIDEO channel;
BYT3=05, Switch to VGA1 channel;
BYT3=06, Switch to VGA2 channel;
BYT3=07, Switch to DVI channel;
BYT3=08, Switch to HDMI channel;
BYT3=09, Switch to EXT channel;
BYT3=0A, Switch YPbPr channel;

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

*This command is valid under switching situation.

2、PIP mode (01)

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
05	01	01	XX	00	00	00	00	00	00	00	00	ChkSum

Instructions 1) **BYT2=01**, the equipment under control will not return the data commands of the 13 bites.

BYT2=81, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation.

- 2) **BYT3=00**, Turn off PIP/POP;
BYT3=01, enter into PIP/POP;
3) **BYT4 to BYT11 no actual meaning, value is 0.**

*This command is valid under switching situation and PIP/POP repairing situation.

3、PIP channel switching (02)

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
05	01	02	XX	00	00	00	00	00	00	00	00	ChkSum

Instructions 1) **BYT2=02**, the equipment under control will not return the data commands of the 13 bites.

BYT2=82, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation.

- 2) **BYT3=00**, PIP/POP channel is V1;
BYT3=01, PIP/POP channel is V2;
BYT3=02, PIP/POP channel is V3;
BYT3=04, PIP/POP channel is S-VIDEO;
BYT3=05, PIP/POP channel is VGA1;
BYT3=06, PIP/POP channel is VGA2;
BYT3=07, PIP/POP channel is DVI;
BYT3=08, PIP/POP channel is HDMI;
BYT3=09, PIP/POP channel is EXT;
- 3) **BYT4 to BYT11 no actual meaning, value is 0.**

*This command is valid only under PIP/POP repairing situation or PIP/POP situation.

4、TEXT mode (03)

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
05	01	03	XX	00	00	00	00	00	00	00	00	ChkSu m

Instructions 1) **BYT2=03**, the equipment under control will not return the data commands of the 13 bites.

BYT2=83, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation.

- 2) **BYT3=00**, turn off TEXT;
BYT3=01, enter into TEXT repairing situation;
- 3) **BYT4 to BYT11 no actual meaning, value is 0;**

*This command is valid only under switching situation or TEXT repairing situation.

5、TEXT channel switching (04)

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
05	01	04	XX	00	00	00	00	00	00	00	00	ChkSu m

Instructions 1) **BYT2=04**, the equipment under control will not return the data commands of the 13 bites.

BYT2=84, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

- 2) **BYT3=00**, TEXT channel is V1;
BYT3=01, TEXT channel is V2;
BYT3=02, TEXT channel is V3;
BYT3=04, TEXT channel is S-VIDEO;
BYT3=05, TEXT channel is VGA1;
BYT3=06, TEXT channel is VGA2;
BYT3=07, TEXT channel is DVI;
BYT3=08, TEXT channel is HDMI;
BYT3=09, TEXT channel is EXT;
- 3) **BYT4 to BYT11 no actual meaning, value is 0;**

*This command is valid only under TEXT repairing situation or TEXT situation.

6、BYPASS (05)

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
05	01	05	XX	00	00	00	00	00	00	00	00	ChkSu m

Instructions 1) **BYT2=05**, the equipment under control will not return the data commands of the 13 bites.

BYT2=85, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

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

BYT3=01, turn on BYPASS;

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

*This command is valid only under switching situation.

7、MOSAIC (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
05	01	06	XX	00	00	00	00	00	00	00	00	ChkSu m

Instructions 1) **BYT2=06**, the equipment under control will not return the data commands of the 13 bites.

BYT2=86, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

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

BYT3=01, turn on MOSAIC;

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

* This command is valid only under switching situation.

8、FREEZE (07)

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
05	01	07	XX	00	00	00	00	00	00	00	00	ChkSu m

Instructions 1) **BYT2=07**, the equipment under control will not return the data commands of the 13 bites.

BYT2=87, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

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

BYT3=01, turn on FREEZE;

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

* This command is valid only under switching situation.

9、VGA-AUTO (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
05	01	08	00	00	00	00	00	00	00	00	00	ChkSu m

Instructions 1) **BYT2=08**, the equipment under control will not return the data commands of the 13 bites.

BYT2=88, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

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

* This command is valid only under switching situation and VGA channel.

10、Setup the output resolution (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
05	01	09	XX	00	00	00	00	00	00	00	00	ChkSu m

Instructions 1) **BYT2=09**, the equipment under control will not return the data commands of the 13 bites.

BYT2=89, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

2) **BYT3=00**, setup output resolution as 1024x768@60Hz;

BYT3=01, setup output resolution as 1024x768@75Hz;

BYT3=02, setup output resolution as 1280x1024@60Hz;

BYT3=03, setup output resolution as 1280x1024@60Hz;

BYT3=04, setup output resolution as 1600x1200@60Hz;

BYT3=05, setup output resolution as 1920x1080@50Hz;

BYT3=06, setup output resolution as 1920x1080@60Hz;

BYT3=07, setup output resolution as 1366x768@60Hz;

BYT3=08, setup output resolution as 1440x900@60Hz;

BYT3=09, setup output resolution as 2048x1152@60Hz;

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

*Please restart the device after setting output resolution.

11、Setup output image place and size (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
05	01	0A	00	XX	XX	XX	XX	XX	XX	XX	XX	ChkSu m

Instructions 1) **BYT2=0A**, the equipment under control will not return the data commands of the 13 bites.

BYT2=8A, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

2) **BYT3** no actual meaning. Value is 0.

3) **BYT4**, quotient of output Hori Start ÷256.

4) **BYT5**, remainder of output Hori Start ÷256.

- 5) **BYT6**, quotient of output Hori Width ÷256.
- 6) **BYT7**, remainder of output Hori Width÷256.
- 7) **BYT8**, quotient of output Vert Start ÷256.;
- 8) **BYT9**, remainder of output Vert Start ÷256;
- 9) **BYT10**, quotient of output Vert Height÷256;
- 10) **BYT11**, remainder of output Vert Height ÷256;

*Please limit the range of value.

*Hori Start+ Width < output max width

*Vert Start+ Height<output max height

12、Setup the image size and place of PIP mode 1 (0B)

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
05	01	0B	00	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

Instructions 1) **BYT2=0B**, the equipment under control will not return the data commands of the 13 bites.

BYT2=8B, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

- 2) **BYT3=00**, setup main channel image size and place.

BYT3=01, setup sub channel image size and place.

- 3) **BYT4**, quotient of output Hori Start ÷256.
- 4) **BYT5**, remainder of output Hori Start ÷256.
- 5) **BYT6**, quotient of output Hori Width ÷256.
- 6) **BYT7**, remainder of output Hori Width÷256.
- 7) **BYT8**, quotient of output Vert Start ÷256.;
- 8) **BYT9**, remainder of output Vert Start ÷256;
- 9) **BYT10**, quotient of output Vert Height÷256;
- 10) **BYT11**, remainder of output Vert Height ÷256;

* Please limit the range of value.:

*Hori Start+ Width < output max width

*Vert Start+ Height<output max height

13、Setup the image size and place of PIP mode2 (0C)

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
05	01	0C	00	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

Instructions 1) **BYT2=0C**, the equipment under control will not return the data commands of the 13 bites.

BYT2=8C, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

- 2) **BYT3=00**, setup main channel image size and place.

BYT3=01, setup sub channel image size and place.

- 3) **BYT4**, quotient of output Hori Start ÷256;

- 4) **BYT5**, remainder of output Hori Start ÷256.
- 5) **BYT6**, quotient of output Hori Width ÷256.
- 6) **BYT7**, remainder of output Hori Width÷256.
- 7) **BYT8**, quotient of output Vert Start ÷256;
- 8) **BYT9**, remainder of output Vert Start ÷256;
- 9) **BYT10**, quotient of output Vert Height÷256;
- 10) **BYT11**, remainder of output Vert Height ÷256;

* Please limit the range of value.:

*Hori Start+ Width < output max width

*Vert Start+ Height<output max height

14、Setup the image size and place of PIP mode3 (0D)

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
05	01	0D	00	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

Instructions 1) **BYT2**=0D, the equipment under control will not return the data commands of the 13 bites.

BYT2=8D, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

- 2) **BYT3**=00, setup main channel image size and place.

BYT3=01, setup sub channel image size and place.

- 3) **BYT4**, quotient of output Hori Start ÷256;
- 4) **BYT5**, remainder of output Hori Start ÷256.
- 5) **BYT6**, quotient of output Hori Width ÷256.
- 6) **BYT7**, remainder of output Hori Width÷256.
- 7) **BYT8**, quotient of output Vert Start ÷256;
- 8) **BYT9**, remainder of output Vert Start ÷256;
- 9) **BYT10**, quotient of output Vert Height÷256;
- 10) **BYT11**, remainder of output Vert Height ÷256;

* Please limit the range of value.:

*Hori Start+ Width < output max width

*Vert Start+ Height<output max height

15、Setup the image size and place of PIP mode 4 (0E)

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
05	01	0E	00	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

Instructions 1) **BYT2**=0E, the equipment under control will not return the data commands of the 13 bites.

BYT2=8E, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

- 2) **BYT3**=00, setup main channel image size and place.

BYT3=01, setup sub channel image size and place.;

Instructions 1) **BYT2=11**, the equipment under control will not return the data commands of the 13 bites.

BYT2=91, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

- 2) **BYT3**, contrast value from 0~100;
- 3) **BYT4 to BYT11 no actual meaning, value is 0;**

19、Setup Color (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
05	01	12	XX	00	00	00	00	00	00	00	00	ChkSum

Instructions 1) **BYT2=12**, the equipment under control will not return the data commands of the 13 bites.

BYT2=92, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

- 2) **BYT3**, color value from 0~100;
- 3) **BYT4 to BYT11 no actual meaning, value is 0;**

20、Setup definition (13)

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
05	01	13	XX	00	00	00	00	00	00	00	00	ChkSum

Instructions 1) **BYT2=13**, the equipment under control will not return the data commands of the 13 bites.

BYT2=93, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

- 2) **BYT3=00**, image smoothness
BYT3=01, image vividness
- 3) **BYT4 to BYT11 no actual meaning, value is 0;**

21、Audio Setting (14)

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
05	01	14	XX	XX	00	00	00	00	XX	XX	XX	ChkSum

Instructions 1) **BYT2=14**, the equipment under control will not return the data commands of the 13 bites.

BYT2=94, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

- 2) **BYT3=00**, V1 output AD1 audio;
BYT3=01, V2 output AD1 audio;
BYT3=02, V3 output AD1 audio;
BYT3=04, S-VIDEO output AD1 audio;

- BYT3=05**, VGA1 output AD1 audio;
BYT3=06, VGA2 output AD1 audio;
BYT3=07, DVI output AD1 audio;
BYT3=08, HDMI output AD1 audio;
BYT3=09, SDI output AD1 audio;
BYT3=0A, YPBPR output AD1 audio;;
- 2) **BYT4=00**, V1 output AD2 audio;
BYT4=01, V2 output AD2 audio;
BYT4=02, V3 output AD2 audio;
BYT4=04, S-VIDEO output AD2 audio;
BYT4=05, VGA1 output AD2 audio;
BYT4=06, VGA2 output AD2 audio;
BYT4=07, DVI output AD2 audio;
BYT4=08, HDMI output AD2 audio;
BYT4=09, SDI output AD2 audio;
BYT4=0A, YPBPR output AD2 audio;
- 3) **BYT5 to BYT11 no actual meaning, value is 0;**

22、Setup Hotspare (15)

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
05	01	15	XX	XX	00	00	00	00	00	00	00	ChkSum

Instructions 1) **BYT2=15**, the equipment under control will not return the data commands of the 13 bites.

BYT2=95, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

- 2) **BYT3=00**, V1->V3 turn off hot spare;
BYT3=01, V1->V3 turn on hot spare;
- 2) **BYT4=00**, V2->S-VIDEO turn off hot spare;
BYT4=01, V2->S-VIDEO turn on hot spare;
- 2) **BYT5=00**, HDMI->DVI turn off hot spare;
BYT5=01, HDMI->DVI turn on hot spare;
- 2) **BYT6=00**, VGA1->VGA2 turn off hot spare;
BYT6=01, VGA1->VGA2 turn on hot spare;

- 3) **BYT7 to BYT11 no actual meaning, value is 0;**

23、Setup Intercepting image size and place (16)

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
05	01	16	00	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

Instructions 1) **BYT2=16**, the equipment under control will not return the data commands of the 13 bites.

BYT2=96, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation

- 2) **BYT3** no actual meaning, value is 0;
- 3) **BYT4**, quotient of intercepting input Hori Start ÷256;
- 4) **BYT5**, remainder of intercepting input Hori Start ÷256.
- 5) **BYT6**, quotient of intercepting input Hori Width ÷256;
- 6) **BYT7**, remainder of intercepting input Hori Width÷256.
- 7) **BYT8**, quotient of intercepting input Vert Start ÷256;
- 8) **BYT9**, remainder of intercepting input Vert Start÷256.
- 9) **BYT10**, quotient of intercepting input Vert Height÷256;
- 10) **BYT11**, remainder of intercepting input Vert Height÷256.

* Please limit the range of value.:

*Hori Start+ Width < output max width

*Vert Start+ Height<output max height

24、Read Device (17)

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
05	01	17	XX	0	0	0	0	0	0	0	0	ChkSum

Instructions 1) **BYT2**=17, the device under control return the read value.

BYT2=97, the device under control return the read value.

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

3) The instructions for **BYT3**:

BYT3=00, the device under control return 13 pcs read data. This means the current situation of system.

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
05	01	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

A) **BYT3**=00, system idle, handled;

BYT3=01, system busy, unhandled.

B) **BYT4**=00, the current menu situation is under switching.

BYT4=01, the current menu situation is unde PIP/POP repairing.

BYT4=03, the current menu situation is under PIP/POP.

BYT4=04, the current situation is under TEXT preparing.

BYT4=05, the current situation is under TEXT.

C) **BYT5**=00, seamless switching;

BYT5=01, fade in fade out time 0.5 seconds;

BYT5=02, fade in fade out time 1.0 second;

BYT5=03, fade in fade out time 1.5 seconds;

D) **BYT6** BIT0 means under MOSAIC situation, 0-UN_MOSAIC/1-MOSAIC;

BYT6 BIT1 means under BYPASS situation, 0-UN_BYPASS/1-BYPASS;

BYT6 BIT2 means under FREEZE situation, 0-UN_FREEZE/1-FREEZE;

E) **BYT7** BIT0~BIT3 means MAIN channel value;

BYT7 BIT4~BIT7 means PIP channel value;

- F) **BYT8** means the current main channel signal format;
- G) **BYT9** means the current sub channel signal format;
- H) **BYT10** means current PIP mode (0~3 means M1~M4);
- I) **BYT11** OSD extended input model;
- 0, no extended input model;
 - 1, extended input is SDI;
 - 2, extended input is VGA;
 - 3, extended input is DVI;
 - 4, extended input is VIDEO

BYT3=01, the device under control return 13 pcs read data. This means PIP/POP main 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
05	01	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

- A) **BYT3=00** means current PIP/POP Mode 1.
BYT3=01 means current PIP/POP Mode 2.
BYT3=02 means current PIP/POP Mode 3..
BYT3=03 means current PIP/POP Mode 4;
- B) **BYT4** means quotient of main channel Hori Start $\div 256$;
- C) **BYT5** means remainder of main channel Hori Start $\div 256$.
- D) **BYT6** means quotient of main channel Hori Width $\div 256$;
- E) **BYT7** means remainder of main channel Hori Width $\div 256$.
- F) **BYT8** means quotient of main channel Vert Start $\div 256$;
- G) **BYT9** means remainder of main channel Vert Start $\div 256$.
- H) **BYT10** means quotient of main channel Vert Height $\div 256$;
- I) **BYT11** means remainder of main channel Vert Height $\div 256$.

BYT3=02, the device under control return 13 pcs read data. This means PIP/POP sub 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
05	01	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

- A) **BYT3=00** means current PIP/POP Mode 1.
BYT3=01 means current PIP/POP Mode 2.
BYT3=02 means current PIP/POP Mode 3.
BYT3=03 means current PIP/POP Mode 4.
- B) **BYT4** means quotient of sub channel Hori Start $\div 256$;
- C) **BYT5** means remainder of sub channel Hori Start $\div 256$.
- D) **BYT6** means quotient of sub channel Hori Width $\div 256$;
- E) **BYT7** means remainder of sub channel Hori Width $\div 256$.
- F) **BYT8** means quotient of sub channel Vert Start $\div 256$;
- G) **BYT9** means remainder of sub channel Vert Start $\div 256$.
- H) **BYT10** means quotient of sub channel Vert Height $\div 256$

I) **BYT11** means remainder of main channel Vert Height $\div 256$.

BYT3=03, the device under control return 13 pcs read data. This means output 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
05	01	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

A) **BYT3=00**, output resolution: 1024x768@60Hz;

BYT3=01, output resolution:1024x768@75Hz;

BYT3=02, output resolution:1280x1024@60Hz;

BYT3=03, output resolution: 1280x1024@60Hz;

BYT3=04, output resolution: 1600x1200@60Hz;

BYT3=05, output resolution: 1920x1080@50Hz;

BYT3=06, output resolution: 1920x1080@60Hz;

BYT3=07, output resolution: 1366x768@60Hz;

BYT3=08, output resolution: 1440x900@60Hz;

BYT3=09, output resolution: 2048x1152@60Hz;

B) **BYT4** means quotient of output Hori Start $\div 256$;

C) **BYT5** means remainder of output Hori Start $\div 256$.

D) **BYT6** means quotient of output Hori Width $\div 256$;

E) **BYT7** means remainder of output Hori Width $\div 256$.

F) **BYT8** means quotient of output Vert Start $\div 256$;

G) **BYT9** means remainder of output Vert Start $\div 256$.

H) **BYT10** means quotient of output Vert Height $\div 256$;

I) **BYT11** means remainder of output Vert Height $\div 256$.

BYT3=04, the device under control return 13 pcs read data. This means input 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
05	01	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

A) **BYT3 Mosaic Station;**

BIT0 = 0, Mosaic off;

BIT0 = 1, Mosaic on;

BIT1 = 0, Sync Mosaic off;

BIT1 = 1, Sync Mosaic on;

B) **BYT4** quotient of intercepting input Hori Start $\div 256$;

C) **BYT5** remainder of intercepting input Hori Start $\div 256$;

D) **BYT6** quotient of intercepting input Hori Width $\div 256$;

E) **BYT7** remainder of intercepting input Hori Width $\div 256$;

F) **BYT8** quotient of intercepting input Vert Start $\div 256$;

G) **BYT9** remainder of intercepting input Vert Start $\div 256$;

H) **BYT10** quotient of intercepting input Vert Height $\div 256$;

I) **BYT11** remainder of intercepting input Vert Height $\div 256$;

05	01	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum
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- A) **BYT3**=00;
 B) **BYT4** means quotient of main channel input Hori Start ÷256;
 C) **BYT5** means remainder of main channel input Hori Start÷256;
 D) **BYT6** means quotient of main channel input Hori Width ÷256;
 E) **BYT7** means remainder of main channel input Hori Width÷256;
 F) **BYT8** means quotient of main channel input Vert Start ÷256;
 G) **BYT9** means remainder of main channel input Vert Start÷256;
 H) **BYT10** means quotient of main channel input Vert Height ÷256;
 I) **BYT11** means remainder of main channel input Vert Height÷256;

BYT3=08 , the device under control return 13 pcs read data. This means PIP/POP Mode1 sub parameters;

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

- A) **BYT3**=00;
 B) **BYT4** means quotient of sub channel input Hori Start ÷256;
 C) **BYT5** means remainder of sub channel input Hori Start÷256;
 D) **BYT6** means quotient of sub channel input Hori Width ÷256;
 E) **BYT7** means remainder of sub channel input Hori Width÷256;
 F) **BYT8** means quotient of sub channel input Vert Start ÷256;
 G) **BYT9** means remainder of sub channel input Vert Start÷256;
 H) **BYT10** means quotient of sub channel input Vert Height ÷256;
 I) **BYT11** means remainder of sub channel input Vert Height ÷256;

BYT3=09 , the device under control return 13 pcs read data. This means PIP/POP Mode2 main parameters;

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

- A) **BYT3**=01;
 B) **BYT4** means quotient of main channel input Hori Start ÷256;
 C) **BYT5** means remainder of main channel input Hori Start÷256;
 D) **BYT6** means quotient of main channel input Hori Width ÷256;
 E) **BYT7** means remainder of main channel input Hori Width÷256;
 F) **BYT8** means quotient of main channel input Vert Start ÷256;
 G) **BYT9** means remainder of main channel input Vert Start÷256;
 H) **BYT10** means quotient of main channel input Vert Height ÷256;
 I) **BYT11** means remainder of main channel input Vert Height÷256;

BYT3=0A , the device under control return 13 pcs read data. This means PIP/POP Mode2 sub

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
05	01	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

- A) **BYT3**=01;
- B) **BYT4** means quotient of sub channel input Hori Start ÷256;
- C) **BYT5** means remainder of sub channel input Hori Start÷256;
- D) **BYT6** means quotient of sub channel input Hori Width ÷256;
- E) **BYT7** means remainder of sub channel input Hori Width÷256;
- F) **BYT8** means quotient of sub channel input Vert Start ÷256;
- G) **BYT9** means remainder of sub channel input Vert Start÷256;
- H) **BYT10** means quotient of sub channel input Vert Height ÷256;
- I) **BYT11** means remainder of sub channel input Vert Height ÷256;

BYT3=0B, the device under control return 13 pcs read data. This means PIP/POP Mode3 main 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
05	01	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

- A) **BYT3**=02;
- B) **BYT4** means quotient of main channel input Hori Start ÷256;
- C) **BYT5** means remainder of main channel input Hori Start÷256;
- D) **BYT6** means quotient of main channel input Hori Width ÷256;
- E) **BYT7** means remainder of main channel input Hori Width÷256;
- F) **BYT8** means quotient of main channel input Vert Start ÷256;
- G) **BYT9** means remainder of main channel input Vert Start÷256;
- H) **BYT10** means quotient of main channel input Vert Height ÷256;
- I) **BYT11** means remainder of main channel input Vert Height÷256;

BYT3=0C, the device under control return 13 pcs read data. This means PIP/POP Mode3 sub 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
05	01	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

- A) **BYT3**=02;
- B) **BYT4** means quotient of sub channel input Hori Start ÷256;
- C) **BYT5** means remainder of sub channel input Hori Start÷256;
- D) **BYT6** means quotient of sub channel input Hori Width ÷256;
- E) **BYT7** means remainder of sub channel input Hori Width÷256;
- F) **BYT8** means quotient of sub channel input Vert Start ÷256;
- G) **BYT9** means remainder of sub channel input Vert Start÷256;

- H) **BYT10** means quotient of sub channel input Vert Height $\div 256$;
 I) **BYT11** means remainder of sub channel input Vert Height $\div 256$;

BYT3=0D, the device under control return 13 pcs read data. This means PIP/POP Mode4 main 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
05	01	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

- A) **BYT3=03**;
 B) **BYT4** means quotient of main channel input Hori Start $\div 256$;
 C) **BYT5** means remainder of main channel input Hori Start $\div 256$;
 D) **BYT6** means quotient of main channel input Hori Width $\div 256$;
 E) **BYT7** means remainder of main channel input Hori Width $\div 256$;
 F) **BYT8** means quotient of main channel input Vert Start $\div 256$;
 G) **BYT9** means remainder of main channel input Vert Start $\div 256$;
 H) **BYT10** means quotient of main channel input Vert Height $\div 256$;
 I) **BYT11** means remainder of main channel input Vert Height $\div 256$;

BYT3=0E, the device under control return 13 pcs read data. This means PIP/POP Mode4 sub 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
05	01	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	ChkSum

- A) **BYT3=03**;
 B) **BYT4** means quotient of sub channel input Hori Start $\div 256$;
 C) **BYT5** means remainder of sub channel input Hori Start $\div 256$;
 D) **BYT6** means quotient of sub channel input Hori Width $\div 256$;
 E) **BYT7** means remainder of sub channel input Hori Width $\div 256$;
 F) **BYT8** means quotient of sub channel input Vert Start $\div 256$;
 G) **BYT9** means remainder of sub channel input Vert Start $\div 256$;
 H) **BYT10** means quotient of sub channel input Vert Height $\div 256$;
 I) **BYT11** means remainder of sub channel input Vert Height $\div 256$;

25、setup PIP/POP mode (18)

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
05	01	18	XX	00	00	00	00	00	00	00	00	ChkSum

说明 1) **BYT2=18**, the equipment under control will not return the data commands of the 13 bites.

BYT2=98, the equipment under control will return the data commands of the 13 bites after

receiving commands and finished related operation.

- 2) **BYT3**=00, setup PIP mode 1;
BYT3=01, setup PIP mode 2;
BYT3=02, setup PIP mode 3;
BYT3=03, setup PIP mode 4;
- 3) **BYT4** to **BYT11** no actual meaning, value is 0;

26、setup seamless switching/fade in fade out mode (19)

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
05	01	19	XX	00	00	00	00	00	00	00	00	ChkSum

说明 1) **BYT2**=19, the equipment under control will not return the data commands of the 13 bites.

BYT2=99, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation.

- 2) **BYT3**=00, setup seamless switching;
BYT3=01, setup fade in fade out time 0.5s;
BYT3=02, setup fade in fade out time 1.0s;
BYT3=03, setup fade in fade out time 1.5s;
- 3) **BYT4** to **BYT11** no actual meaning, value is 0;

27、setup sync mosaic mode (1A)

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
05	01	1A	XX	00	00	00	00	00	00	00	00	ChkSum

说明 1) **BYT2**=1A, the equipment under control will not return the data commands of the 13 bites.

BYT2=9A, the equipment under control will return the data commands of the 13 bites after receiving commands and finished related operation.

- 2) **BYT3**=00, setup non sync mosaic;
BYT3=01, setup sync mosaic;
- 3) **BYT4** to **BYT11** no actual meaning, value is 0;

五、software design

- 1、The initial software must configure the COM port first.
- 2、The next is choosing the equipment number under control (reading through **Info** button on the equipment panel);
- 3、Test COM port communication is normal.(sending one piece of **Read Device Status** command to check the return.
- 4、Then read device basic configure and current status.

5、 Read device basic configure and current status timing, to judge equipment has finished the operation
可 command sending by software.

6 、 To make sure equipment receiving command correctly and finishing related operation, some
command has return setup option. Namely **BYT2** is odd value. This option is recommended.