

EX Series Communication Protocol And Use Examples V1.9

● Command Format

Format : Header + Command + Parameter + Tail (Total Length: 16Bytes)

Header : 3Bytes, Consisting of fixed values: 0xEB, 0x90, 0x10

Command : 2Bytes

Parameter : 10Bytes (Param0~Param9)

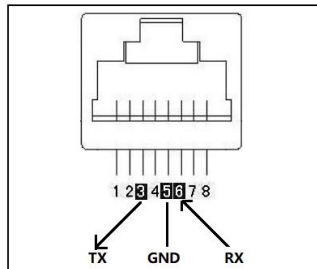
Tail : 1Byte, Consisting of fixed values: 0x55

Remark : The command is in hexadecimal format

NET Connect TCP Port Number: 62203 UDP Port Number: 62202

Serial Port Connect Baud Rate: 115200(default)

Serial Port Connection Diagram



● Command Examples

1. Mode And Preset

Load Template

Param0 Value Range: 0x00~0x09, Example As Below:

EB 90 10 83 00 00 00 00 00 00 00 00 00 00 00 55	//Load Template1
EB 90 10 83 00 01 00 00 00 00 00 00 00 00 00 55	//Load Template2
EB 90 10 83 00 02 00 00 00 00 00 00 00 00 00 55	//Load Template3
EB 90 10 83 00 03 00 00 00 00 00 00 00 00 00 55	//Load Template4
EB 90 10 83 00 04 00 00 00 00 00 00 00 00 00 55	//Load Template5
EB 90 10 83 00 05 00 00 00 00 00 00 00 00 00 55	//Load Template6
EB 90 10 83 00 06 00 00 00 00 00 00 00 00 00 55	//Load Template7
EB 90 10 83 00 07 00 00 00 00 00 00 00 00 00 55	//Load Template8
EB 90 10 83 00 08 00 00 00 00 00 00 00 00 00 55	//Load Template9
EB 90 10 83 00 09 00 00 00 00 00 00 00 00 00 55	//Load Template10

Load Preset

Param0 Value Range: 0x00~0x09, Example As Below:

EB 90 10 83 01 00 00 00 00 00 00 00 00 00 00 55	//Load Preset1
EB 90 10 83 01 01 00 00 00 00 00 00 00 00 00 55	//Load Preset2

EB 90 10 83 01 02	00 00 00 00 00 00 00 00 00 00 55	//Load Preset3
EB 90 10 83 01 03	00 00 00 00 00 00 00 00 00 00 55	//Load Preset4
EB 90 10 83 01 04	00 00 00 00 00 00 00 00 00 00 55	//Load Preset5
EB 90 10 83 01 05	00 00 00 00 00 00 00 00 00 00 55	//Load Preset6
EB 90 10 83 01 06	00 00 00 00 00 00 00 00 00 00 55	//Load Preset7
EB 90 10 83 01 07	00 00 00 00 00 00 00 00 00 00 55	//Load Preset8
EB 90 10 83 01 08	00 00 00 00 00 00 00 00 00 00 55	//Load Preset9
EB 90 10 83 01 09	00 00 00 00 00 00 00 00 00 00 55	//Load Preset10

Save Preset

Param0 Value Range: 0x00~0x09, Example As Below:

EB 90 10 83 02 00	00 00 00 00 00 00 00 00 00 00 55	//Save Preset1
EB 90 10 83 02 01	00 00 00 00 00 00 00 00 00 00 55	//Save Preset2
EB 90 10 83 02 02	00 00 00 00 00 00 00 00 00 00 55	//Save Preset3
EB 90 10 83 02 03	00 00 00 00 00 00 00 00 00 00 55	//Save Preset4
EB 90 10 83 02 04	00 00 00 00 00 00 00 00 00 00 55	//Save Preset5
EB 90 10 83 02 05	00 00 00 00 00 00 00 00 00 00 55	//Save Preset6
EB 90 10 83 02 06	00 00 00 00 00 00 00 00 00 00 55	//Save Preset7
EB 90 10 83 02 07	00 00 00 00 00 00 00 00 00 00 55	//Save Preset8
EB 90 10 83 02 08	00 00 00 00 00 00 00 00 00 00 55	//Save Preset9
EB 90 10 83 02 09	00 00 00 00 00 00 00 00 00 00 55	//Save Preset10

2. Picture Quality Adjust

Brightness

Param1 Value Range: 0x00~0x64, Example As Below:

EB 90 10 80 01 00 0A	00 00 00 00 00 00 00 00 00 00 55	//Brightness10
EB 90 10 80 01 00 14	00 00 00 00 00 00 00 00 00 00 55	//Brightness20
EB 90 10 80 01 00 1E	00 00 00 00 00 00 00 00 00 00 55	//Brightness30
EB 90 10 80 01 00 28	00 00 00 00 00 00 00 00 00 00 55	//Brightness40
EB 90 10 80 01 00 32	00 00 00 00 00 00 00 00 00 00 55	//Brightness50
EB 90 10 80 01 00 3C	00 00 00 00 00 00 00 00 00 00 55	//Brightness60
EB 90 10 80 01 00 46	00 00 00 00 00 00 00 00 00 00 55	//Brightness70
EB 90 10 80 01 00 50	00 00 00 00 00 00 00 00 00 00 55	//Brightness80

Contrast

Param1 Value Range: 0x00~0x64, Example As Below:

EB 90 10 80 02 00 3C	00 00 00 00 00 00 00 00 00 00 55	//Contrast60
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Sharpness

Param1 Value Range: 0x00~0x18, Example As Below:

EB 90 10 80 03 00 **18** 00 00 00 00 00 00 00 00 55 //Sharpness24

Hue

Param1 Value Range: 0x00~0x64, Example As Below:

EB 90 10 80 04 00 **3C** 00 00 00 00 00 00 00 00 55 //Hue60

Saturation

Param1 Value Range: 0x00~0x64, Example As Below:

EB 90 10 80 05 00 **3C** 00 00 00 00 00 00 00 00 55 //Saturation60

Picture Quality Reset

EB 90 10 80 FF 00 00 00 00 00 00 00 00 00 55 //Reset PQ

3. Other Function

Test Pattern (TP)

Param0 Value Range: 0x00~0xA, 0xFF. Example As Below:

EB 90 10 8A 00 **FF** 00 00 00 00 00 00 00 00 00 55 //Exit TP

EB 90 10 8A 00 **00** 00 00 00 00 00 00 00 00 00 55 //Show TP0

EB 90 10 8A 00 **01** 00 00 00 00 00 00 00 00 00 55 //Show TP1

Freeze

Param0 Value Range: 0x00 Unfreeze, 0x01 Freeze. Example As Below:

EB 90 10 8F 00 **01** 00 00 00 00 00 00 00 00 00 55 //Freeze

EB 90 10 8F 00 **00** 00 00 00 00 00 00 00 00 00 55 //Unfreeze

Black Screen

Param0 Value Range: 0x00 Normal, 0x01 Black. Example As Below:

EB 90 10 92 00 **01** 00 00 00 00 00 00 00 00 00 55 //Black

EB 90 10 92 00 **00** 00 00 00 00 00 00 00 00 00 55 //Normal

Input Select

Param0 Value Range: 0~3, Means Win1 ~ Win 4

Param1 Value Range:

0x10~0x17 HDMI1~HDMI8

0x20~0x27 DVI1~DVI8

0x30~0x37 VGA1~VGA8

0x40~0x47 DP1~DP8

EB 90 10 87 00 00 10 00 00 00 00 00 00 00 00 55	//Win1 to HDMI1
EB 90 10 87 00 00 11 00 00 00 00 00 00 00 00 55	//Win1 to HDMI2
EB 90 10 87 00 00 12 00 00 00 00 00 00 00 00 55	//Win1 to HDMI3
EB 90 10 87 00 00 20 00 00 00 00 00 00 00 00 55	//Win1 to DVI1
EB 90 10 87 00 00 21 00 00 00 00 00 00 00 00 55	//Win1 to DVI2
EB 90 10 87 00 00 40 00 00 00 00 00 00 00 00 55	//Win1 to DP1
EB 90 10 87 00 00 30 00 00 00 00 00 00 00 00 55	//Win1 to VGA1
EB 90 10 87 00 01 10 00 00 00 00 00 00 00 00 55	//Win2 to HDMI1
EB 90 10 87 00 01 11 00 00 00 00 00 00 00 00 55	//Win2 to HDMI2
EB 90 10 87 00 01 12 00 00 00 00 00 00 00 00 55	//Win2 to HDMI3
EB 90 10 87 00 01 20 00 00 00 00 00 00 00 00 55	//Win2 to DVI1
EB 90 10 87 00 01 21 00 00 00 00 00 00 00 00 55	//Win2 to DVI2
EB 90 10 87 00 01 40 00 00 00 00 00 00 00 00 55	//Win2 to DP1
EB 90 10 87 00 01 30 00 00 00 00 00 00 00 00 55	//Win2 to VGA1
EB 90 10 87 00 02 10 00 00 00 00 00 00 00 00 55	//Win3 to HDMI1
EB 90 10 87 00 02 11 00 00 00 00 00 00 00 00 55	//Win3 to HDMI2
EB 90 10 87 00 02 12 00 00 00 00 00 00 00 00 55	//Win3 to HDMI3
EB 90 10 87 00 02 20 00 00 00 00 00 00 00 00 55	//Win3 to DVI1
EB 90 10 87 00 02 21 00 00 00 00 00 00 00 00 55	//Win3 to DVI2
EB 90 10 87 00 02 40 00 00 00 00 00 00 00 00 55	//Win3 to DP1
EB 90 10 87 00 02 30 00 00 00 00 00 00 00 00 55	//Win3 to VGA1

Audio Setting

Audio Mute

Param0 Value Range: 0 Mute OFF, 1 Mute ON

EB 90 10 86 01 01 00 00 00 00 00 00 00 00 00 55 //Mute ON

EB 90 10 86 01 00 00 00 00 00 00 00 00 00 00 55 //Mute OFF

Volume

Param0 Value Range: 0~30

EB 90 10 86 02 05 00 00 00 00 00 00 00 00 00 55 //Volume = 5

EB 90 10 86 02 10 00 00 00 00 00 00 00 00 00 55 //Volume = 16

Output Resolution

Param0 Value: 0xFF All Output ,	0~5	Group Output 1~6
Param1 Value: 0 Customized Resolution,	1~16	Standard Resolution

Customized Resolution:

Width[Param2,Param3], Hight[Param4,Param5], FrameRate[Param6]

Example : 2000x1000x60 Expressed As 07 D0 03 EB 3C

//Set All Output To Customized Resolution 2000x1000 60Hz

EB 90 10 84 00 FF 00 07 D0 03 E8 3C 00 00 00 55 //2000x1000 60Hz

//Set Group Output1 To Customized Resolution 2000x1000 60Hz

EB 90 10 84 00 00 00 07 D0 03 E8 3C 00 00 00 55 //2000x1000 60Hz

//Set Group OutputN To Customized Resolution 2000x1000 60Hz

EB 90 10 84 00 N-1 00 07 D0 03 E8 3C 00 00 00 55 //2000x1000 60Hz

//Set Group Output1 To Standard Resolution 1024x768 60Hz

EB 90 10 84 00 00 01 00 00 00 00 00 00 55 //1024x768 60Hz

//Set Group OutputN To Standard Resolution 1024x768 60Hz

EB 90 10 84 00 N-1 01 00 00 00 00 00 00 55b //1024x768 60Hz

//Set All Outputs To Standard Resolution

EB 90 10 84 00 FF 01 00 00 00 00 00 00 55 //1024x768 60Hz

EB 90 10 84 00 FF 02 00 00 00 00 00 00 55 //1280x720 60Hz

EB 90 10 84 00 FF 03 00 00 00 00 00 00 55 //1280x1024 60Hz

EB 90 10 84 00 FF 04 00 00 00 00 00 00 55 //1440x900 60Hz

EB 90 10 84 00 FF 05 00 00 00 00 00 00 55 //1600x1200 60Hz

EB 90 10 84 00 FF 06 00 00 00 00 00 00 55 //1680x1050 60Hz

EB 90 10 84 00 FF 07 00 00 00 00 00 00 55 //1920x1080 60Hz

EB 90 10 84 00 FF 08 00 00 00 00 00 00 55 //1920x1200 60Hz

EB 90 10 84 00 FF 09 00 00 00 00 00 00 55 //1024x1920 60Hz

EB 90 10 84 00 FF 0A 00 00 00 00 00 00 55 //1536x1536 60Hz

EB 90 10 84 00 FF 0B 00 00 00 00 00 00 55 //2048x640 60Hz

EB 90 10 84 00 FF 0C 00 00 00 00 00 00 55 //2048x1152 60Hz

EB 90 10 84 00 FF 0D 00 00 00 00 00 00 55 //2304x1152 60Hz

EB 90 10 84 00 FF 0E 00 00 00 00 00 00 55 //2560x816 60Hz

EB 90 10 84 00 FF 0F 00 00 00 00 00 00 55 //3840x640 60Hz

Window Setting

Param0 Value: 0~3 Is For Win1~Win4

Hstart [Param1, Param2], Vstart [Param3, Param4]

Width [Param5, Param6], Hight [Param7, Param8]

Example : (0, 0, 800, 600) Expressed As 00 00 00 00 03 20 02 58

```
//Set win1 co-ordinate (0, 0, 800, 600)
EB 90 10 82 00 00 00 00 00 03 20 02 58 00 55

//Set win2 co-ordinate (0, 0, 800, 600)
EB 90 10 82 00 01 00 00 00 03 20 02 58 00 55
```

Image Crop

Param0 Value: 0~3 is for Win1~Win4

Param1 Value: 0 Crop Off , 1 Crop On

Hstart [Param2, Param3], Vstart [Param4, Param5]

Width [Param6, Param7], Hight [Param8, Param9]

Example : (0, 0, 800, 600) Expressed As 00 00 00 00 03 20 02 58

```
//Win1 Image Crop On And Set To (0, 0, 800, 600)
```

```
EB 90 10 81 00 00 01 00 00 00 00 03 20 02 58 55
```

```
//Win1 Image Crop Off (Corp Params Is Not Effect, It Can Be Set All Zero)
```

```
EB 90 10 81 00 00 00 00 00 00 00 03 20 02 58 55
```

```
//Win2 Image Crop On And Set To (0, 0, 800, 600)
```

```
EB 90 10 81 00 01 01 00 00 00 00 03 20 02 58 55
```

```
//Win1 Image Crop Off (Corp Params Is Not Effect, It Can Be Set All Zero)
```

```
EB 90 10 81 00 01 00 00 00 00 00 03 20 02 58 55
```

EDID Setting

Param0 Value:

0x00	All Input Port
0x10~0x17	HDMI1 ~ HDMI8
0x20~0x27	DVI1 ~ DVI8
0x30~0x37	VGA1 ~ VGA8
0x40~0x47	DP1 ~ DP8

Width [Param1, Param2], Hight [Param3, Param4], FrameRate [Param5]

Example : 800x600x60 Expressed As 03 20 02 58 3C

```
//Set All Input EDID As 800x600@60
```

```
EB 90 10 8B 00 00 03 20 02 58 3C 00 00 00 00 55
```

```
//Set HDMI1 Input EDID As 800x600@60
```

```
EB 90 10 8B 00 10 03 20 02 58 3C 00 00 00 00 55
```

```
//Set HDMI2 Input EDID As 800x600@60
```

```
EB 90 10 8B 00 11 03 20 02 58 3C 00 00 00 00 55
```

```
//Set HDMI3 Input EDID As 800x600@60
```

```
EB 90 10 8B 00 12 03 20 02 58 3C 00 00 00 00 55
//Set DP1 Input EDID As 800x600@60
EB 90 10 8B 00 40 03 20 02 58 3C 00 00 00 00 55
//Set DVI1 Input EDID As 800x600@60
EB 90 10 8B 00 20 03 20 02 58 3C 00 00 00 00 55
//Set DVI2 Input EDID As 800x600@60
EB 90 10 8B 00 21 03 20 02 58 3C 00 00 00 00 55
```

Authorization Management

Response Command: Parameter 9: 0 - Set Failed 1 - Set Successful

Operation: First, Verify The Username And Password. After Successful Verification, Proceed With Other Settings.

Verify Username: Command 0xEF 0x01

```
EB 90 10 EF 01 61 64 6D 69 6E 00 00 00 00 00 55 // admin
```

Verify Password: Command 0xEF 0x02

```
EB 90 10 EF 02 61 64 6D 69 6E 00 00 00 00 00 55 // admin
```

Set Username: Command 0xEF 0x03

```
EB 90 10 EF 03 61 64 6D 69 6E 00 00 00 00 00 55 // admin
```

Set Password: Command 0xEF 0x04

```
EB 90 10 EF 04 61 64 6D 69 6E 00 00 00 00 00 55 // admin
```

Set System Time: Command 0xEF 0x05

Format: Year-2000, Month, Day, Hour, Minute, Second

```
EB 90 10 EF 05 1A 01 01 10 01 01 00 00 00 00 55 // 2026-1-1 18:01:01
```

Authorize By Date: Command 0xEF 0x06

```
EB 90 10 EF 06 1B 01 01 10 01 01 00 00 00 00 55
```

// 2027-1-1 18:01:01 - Authorization By Date Enabled

Disable Date Authorization: Command 0xEF 0x07

```
EB 90 10 EF 07 00 00 00 00 00 00 00 00 00 55
```

// Authorization By Date Disabled

Authorize By Usage Duration: Command 0xEF 0x08

```
EB 90 10 EF 08 00 00 00 01 00 00 00 02 00 00 55
```

// Remaining Usage Duration: 1 hour 2 minutes, Authorization Enabled

Disable Usage Duration Authorization: Command 0xEF 0x09

```
EB 90 10 EF 09 00 00 00 00 00 00 00 00 00 55
```

// Authorization Disabled