FLEX 16pro

Multi-screen Splicing Processor (All-In-One)



Quick Start

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Product Overview

Flex16pro is a 1U rack- mountable, fully modular 4K video wall processor featuring a new hardware architecture with the smallest footprint among traditional 16- screen solutions. Each unit supports up to 4 optional modules and each module has three options: 2- in/6- out, 4- in/4- out, or 6- in/2- out. These can be flexibly combined to cover a wide range of scenarios from 8-in/24-out to 24- in/8- out. Up to 4 windows per screen, CUT switching, web -based management and openAPI.

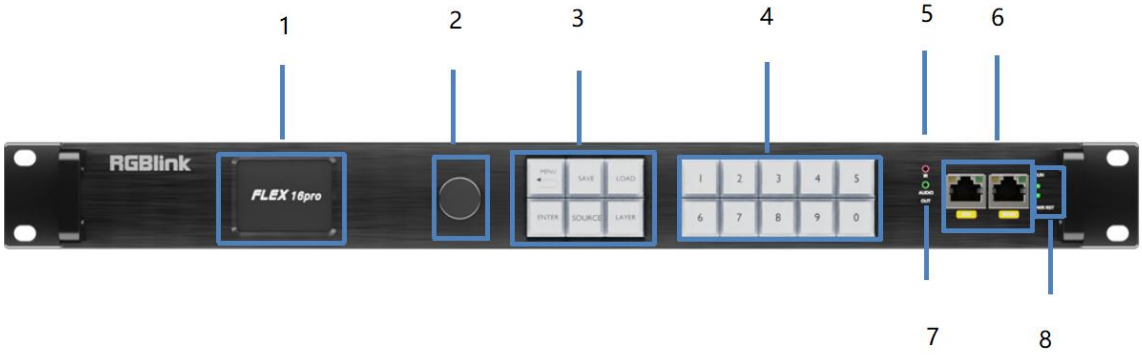
Key Features

- Modular I/O configuration — optional 4×4, 2×6, or 6×2 input/output combo modules.
- Up to 4 I/O combo modules per chassis.
- 4K60 support — 3840×2160@60Hz input and output.
- Advanced display functions — video wall splicing, roaming, cross-screen, scaling, PIP, POP, and overlay for any video signal.
- Multi-window capability — up to 4 windows per screen; full wall layer stacking up to 4×N layers (N = number of screens).
- Signal preview and wall monitoring — real-time input preview and output feedback.
- Web-based control — switch preset scenes from PC, phone, or tablet via web browser.
- 1000+ preset scenes storage capacity.
- Scene auto-rotation — customizable rotation intervals.
- Seamless scene switching — < 30ms delay, no stutter, no blue screen, no flicker.
- Ultra HD subtitles and background image support.
- LSupports source and display device validity detection with status LED indication.
- Frame-synchronized outputs — 0ns port-to-port timing difference (excluding display panel variance).
- Multi-user management.
- Compatible with third-party central control systems including Crestron, AMX, QSC, Companion, etc.

In the Box

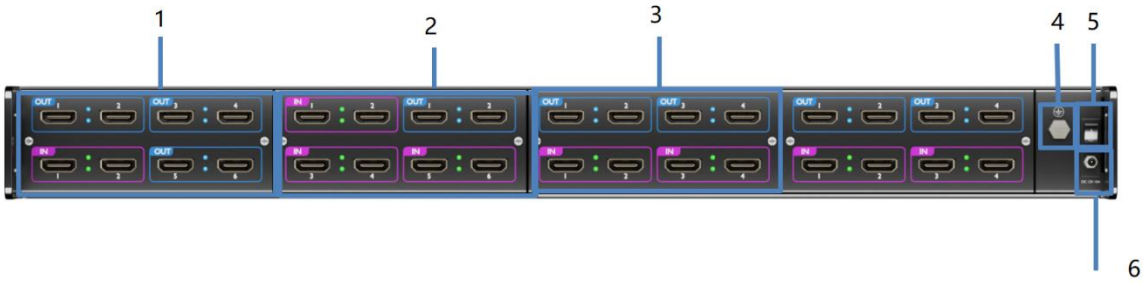
DC12V/10A Power Adapter×1
CAT 6 Cable×1

Front Panel



No.	Name	Description
1	LCD Screen	Displays device menu and status
2	Knob	Selects menu functions and confirms
3	Function Buttons	MENU: Open menu ENTER: Confirm key SAVE: Scene save menu LOAD: Scene recall menu SOURCE: No function currently LAYER: Layer menu
4	Numeric Buttons	Used for numbers input
5	IR	Infrared receiver interface
6	Communication Interfaces	LAN: 10M/100M adaptive network port for network communication RS232: Serial communication
7	Audio Output	Independent audio output port, de-embeds audio from one of the input channels
8	Indicators	RUN: Working indicator, green solid = operating normally PWR RST: Power/Reset indicator, red solid = powered on; red flashing = device resetting

Ports info



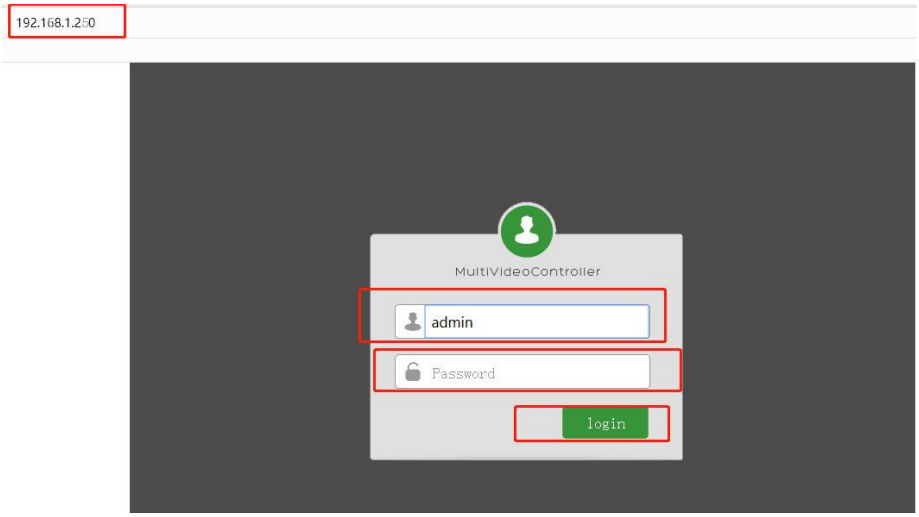
No.	Name	Description
1	Optional I/O Combo	2×6 I/O; 2×HDMI Input & 6×HDMI Output
2		6×2 I/O; 6×HDMI Input & 2×HDMI Output
3		4×4 I/O; 4×HDMI Input & 4×HDMI Output
4	Grounding Screw	
5	Power Switch	Firmware upgrade interface
6	DC 12V 10A	Threaded anti-detach DC connector

Use Your Product

Web Control

Web Login

Open a browser and enter the processor's IP address in the address bar (factory default IP: 192.168.1.250). The Web login page will appear. Enter the account and password to log in. Default account: admin, password: (empty by default); as shown below:



Web Operation

After successful login, click the desired scene to recall it. You can also set automatic scene rotation. As shown below:



API Control

This system supports HTTP and serial control methods.

HTTP Control Method

HTTP Port: 80.
Keep-alive mode is not supported.
Unless otherwise specified, the POST or GET URL for the interfaces below is:
http://host_ip_address/index2.html

• **Login**

Request type	POST

Content	Json:
	{
	"Command" : "Login",
	"UserName" : "Username",
	"Password" : "MD5 string of password"
	}

Response	Json:
	{
	"Status" : "Ok"/"Error",
	"SessionId" : Session ID of this login -- valid when status is ok,
	"ScreenGroup" : [Screen group permissions, 1 = can operate, 0 = cannot operate],
	"Message" : "Error message"
	}

Note: The session ID must be saved for subsequent use.

• **Get Host Scene List**

This command retrieves the scene list corresponding to the screen group specified by ScreenGroup.

Request type	GET
Header contains	session_id=session id
Content	Command=GetAllModal&ScreenGroup=Screen group number (1~4)

Response	Json:
	{
	"Status":"Ok"/"Error",
	"ModalList":["Scene Name", "Scene Name", ...]
	}

• **Get Host Scene Thumbnail**

Request type	GET
URL	http://xxx.xxx.xxx.xxx/scene_name.jpg
Header contains	session_id=session id
Response	Image data

• **Switch Scene**

Request type	POST
Header contains	session_id=session id
Content	Json: { "Command" : "LoadModal", "ScreenGroup" : Screen group number (1~4),

	"ModalName" : "Scene Name" }

Response	Json:
	{
	"Status" : "Ok"/"Error",
	"Message" : "Error message"
	}

Serial Control Method

• Serial Configuration

- Baud Rate: 9600
- Parity: None
- Flow Control: None
- Data Bits: 8
- Stop Bits: 1

If using RJ45 network cable to connect to the processor serial port, pin 1 is our TX, pin 2 is our RX, pin 6 is our GND; other pins are disconnected. RJ45 pinout diagram is as follows:
(Refer to original document for RJ45 pinout diagram)
If using DB9 serial cable to connect to the processor serial port, pin 3 is our TX, pin 2 is our RX, pin 5 is our GND. DB9 pin definitions are as follows:
(Refer to original document for DB9 pin definition diagram)

• Packet Format

Commands sent from the control system to the device, and responses from the device to the control system, are both encapsulated into data packets. Each packet starts with the $ character and ends with the ^ character, as shown below:

Op indicates the operation command, one character.
Scr indicates the screen group number to be operated, one character.

Format: $ Op Scr DATA ^

The processor control system supports both string commands and hexadecimal commands. The control device can send either string commands or hexadecimal commands to the processor, both of which can be processed. Hexadecimal commands are the ASCII codes of the string.

• Serial Commands

Get Host Scene List

Op	1
Scr	One byte, value 1 to 4, specifying the screen group number
DATA	None
Examples	Get screen group 1 scenes: $11^ Get screen group 2 scenes: $12^ Get screen group 3 scenes: $13^ Get screen group 4 scenes: $14^
Device Response	Op: 1 DATA: Multiple scene names separated by spaces (UTF8 format). Example: Scene1 Scene2

Get Current Window List

Op	2
Scr	One byte, value 1 to 4, specifying the screen group number.
DATA	None
Examples	Get screen group 1 window list: $21^ Get screen group 2 window list: $22^ Get screen group 3 window list: $23^ Get screen group 4 window list: $24^
Device Response	Op: 2 DATA: Multiple window information separated by brackets, window info format is [WindowID,Top-left X,Top-left Y,Bottom-right X,Bottom-right Y]. Example: 2[21326,0,0,960,540][25588,960,0,1920,540]...[13336,5760,8100,6720,8640][9651,6720,8100,7680,8640]

Switch Scene

Op	3
Scr	One byte, value 1 to 4, specifying the screen group number
DATA	Scene name (UTF8 format)
Examples	Switch screen group 1 to "Scene5": $31Scene5^ Switch screen group 2 to "ab": $32ab^ Switch screen group 3 to "123ab": $33123ab^ Switch screen group 4 to "Scene6a": $34Scene6a^ Scene name "1" code: 24 33 31 31 5E Scene name "2" code: 24 33 31 32 5E Scene name "3" code: 24 33 31 33 5E
Device Response	Op: 3 DATA: Ok or Error

Open Window with Signal Source

Op	4
Scr	One byte, value 1 to 4, specifying the screen group number
DATA	[WindowID][Input Slot 1-16][Input Port 1-8][Top-left X,Top-left Y,Bottom-right X,Bottom-right Y] Window ID must be an integer >=1, with uniqueness; multiple windows cannot have duplicate IDs.
Examples	Open input slot 2 port 3 on group 1, window ID=2, coords 1920,1080,3840,2160: $41[2][2][3][1920,1080,3840,2160]^ Hex code: 24 34 31 5B 32 5D 5B 32 5D 5B 33 5D 5B 31 39 32 30 2C 31 30 38 30 2C 33 38 34 30 2C 32 31 36 30 5D 5E
Device Response	Op: 4 DATA: Ok or Error

Switch Window Signal Source

Op	5
Scr	One byte, value 1 to 4, specifying the screen group number
DATA	[WindowID][Input Slot 1-16][Input Port 1-8]

	Window ID can be obtained via Get Current Window List interface.
Examples	Switch input slot 2 port 3 to window ID 21326 on group 1: $51[21326][2][3]^ Hex code: 24 35 31 5B 32 31 33 32 36 5D 5B 32 5D 5B 33 5D 5E
Device Response	Op: 5 DATA: Ok or Error

Get Processor IP

Op	6
Scr	None
DATA	None
Example	$6^
Device Response	Op: 6 DATA: Processor IP. Example: IP:[192.168.1.250]

Set Processor IP Address

Op	7
Scr	None
DATA	IP address
Example	Set processor IP address to 192.168.1.200: $7192.168.1.200^
Device Response	Op: 7 DATA: Ok or Error

Reset Processor

Op	8
Scr	None
DATA	None
Example	$8^
Device Response	Op: 8 DATA: Ok or Error, device restarts after successful reset

Switch Audio Channel

Op	9
Scr	None
DATA	[Input Slot 1-16][Input Port 1-8] To close audio input, set both input slot and input port to 0.
Examples	Switch to slot 2 port 3: $9[2][3]^ Close audio input: $9[0][0]^ Switch to slot 2 port 3 hex code: 24 39 5B 32 5D 5B 33 5D 5E Close audio hex code: 24 39 5B 30 5D 5B 30 5D 5E
Device Response	Op: 9 DATA: Ok or Error

Close Window

Op	0
Scr	One byte, value 1 to 4, specifying the screen group number

DATA	[WindowID] To close all windows in current group, set WindowID to 0.
Examples	Close group 2 window ID 1: $02[1]^ Close group 1 all windows: $01[0]^ Close group 2 window ID 1 hex: 24 30 32 5B 31 5D 5E Close group 1 all windows hex: 24 30 31 5B 30 5D 5E
Device Response	Op: 0 DATA: Ok or Error

Move Window

Op	a
Scr	One byte, value 1 to 4, specifying the screen group number
DATA	[WindowID][Top-left X,Top-left Y,Bottom-right X,Bottom-right Y] Window ID can be obtained via Get Current Window List interface. 0509 point-to-point mode does not support window operations.
Example	Move group 1 window ID 1 to 1920,1080,3840,2160: $a1[1][1920,1080,3840,2160]^ Hex code: 24 61 31 5B 31 5D 5B 31 39 32 30 2C 31 30 38 30 2C 33 38 34 30 2C 32 31 36 30 5D 5E
Device Response	Op: a DATA: Ok or Error

Xiamen RGBlink Science & Technology Co Ltd.

- **Tel:** +86-592-5771197
- **Fax:** +86-592-5788216
- **Customer Hotline:** 4008-592-315
- **Web:** http://www.rgblink.com
- **E-mail:** support@rgblink.com
- **Headquarter:** The 6th floor, Building 3, Xinke Plaza, Torch Hi-Tech Industrial Development Zone, Xiamen, China

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