

INTEGRATION MANUAL

LUMAGEN RADIANCE

CRESTRON 4-SERIES MODULE

This module controls a Lumagen Radiance video processor from a Crestron 4-Series processor over RS-232. It sends power, input, menu navigation, aspect ratio, memory and picture-in-picture commands, and reports power state and the full source and output status that the Radiance sends back.

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01 AT A GLANCE

REQUIREMENTS

- Crestron 4-Series control processor with a free RS-232 COM port
- Lumagen Radiance video processor with its RS-232 port available
- RS-232 cable between the Crestron COM port and the Radiance RS-232 port
- Radiance RS-232 port set to 9600 baud, 8 data bits, no parity, 1 stop bit, no flow control

CONNECTION

ITEM	DETAIL
Protocol	RS-232 serial
Baud rate	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None (no hardware or software handshake)

ITEM	DETAIL
Response framing	Replies from the Radiance are expected to end with carriage return + line feed
Network (IP) control	Not supported by this module

02 LICENSING

01 BUY A LICENSE Enter the processor serial and a site name, then pay by card.	02 INSTALL THE LICENSE FILE We email a license file locked to that processor. Load it and the module unlocks.	03 LOAD THE MODULE Add it to your 4-Series program.
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Each license is for one processor. To run the module on another processor, buy a license for that processor's serial.

03 CONFIGURATION

Add one entry for each Lumagen Radiance to `VideoProcessorConfig.json`. Key names are case-sensitive.

KEY	TYPE	DEFAULT	DESCRIPTION
<code>driverName</code>	text	—	Must be River.Lumagen.Radiance.Rs232.
<code>resourceId</code>	number	—	Id of the COM port device (for example a CEN-IO-COM-102) in <code>ResourceConfig.json</code> .
<code>portId</code>	number	—	COM port number on that device that the Radiance is cabled to.
<code>cycleAspectList</code>	list	—	Required. The ordered list of aspect ratio IDs that the Cycle Aspect Ratio command steps through. Use the IDs from the aspect ratio table: 2 = 4:3, 6 = 16:9, 8 = 1.85, 9 = 1.90, 10 = 2.00, 16 = 2.10, 11 = 2.20, 13 = 2.35, 14 = 2.40. The module will not start if this list is missing.

EXAMPLE ENTRY

Replace the values in angle brackets with your own.

```
[
  {
    "id": 1,
    "name": "<Lumagen Radiance name>",
    "sortOrder": 1,
    "driverName": "River.Lumagen.Radiance.Rs232",
    "resourceId": "<COM device id>",
    "portId": "<COM port number>",
    "cycleAspectList": [
      6,
      13,
      14
    ]
  }
]
```

04 SETUP

1. Connect the Radiance RS-232 port to a COM port on the Crestron 4-Series processor.
2. On the Radiance, set the RS-232 port to 9600 baud, 8 data bits, no parity, 1 stop bit, no flow control.
3. Assign the COM port to the module. The module configures the port settings itself when it starts.
4. Enter the cycleAspectList with the aspect ratio IDs you want the Cycle Aspect Ratio command to use, in the order you want them.
5. Load the program and confirm the Connected feedback goes high. On connect the module reads the power state and full status from the Radiance.

05 CONTROLS

CONTROL	WHAT IT DOES
POWER ON	Turns the Radiance on.
POWER OFF	Puts the Radiance in standby.
POWER TOGGLE	Sends Power Off if the last reported power state is on, otherwise sends Power On.
INPUT SELECT (1–8)	Selects HDMI input 1 through 8. Input 0 is ignored. Inputs above 8 are rejected.
INPUT (MANUAL)	Sends the Radiance Input key on its own, for example to follow with a keypad number.

CONTROL	WHAT IT DOES
KEYPAD 0–9	Sends a single number key, 0 through 9.
MENU	Opens the Radiance menu.
EXIT	Sends the Exit key.
HELP	Sends the Help key.
CLEAR	Sends the Clear key.
ARROW UP / DOWN / LEFT / RIGHT	Menu navigation. Sent only on the hold action of the button (see Behavior).
SELECT (OK)	Sends the OK / select key.
ZONE	Sends the Zone key.
ALT	Sends the Alt key.
PREVIOUS	Sends the Previous key.
SAVE	Sends the Save key.
HDR SETUP	Sends the HDR setup key.
PATTERN	Sends the test pattern key.
NLS TOGGLE	Toggles NLS (non-linear stretch).
OUTPUT RESTART	Sends the output restart command.
ASPECT RATIO SELECT	Selects a source aspect ratio by ID: 2 = 4:3, 6 = 16:9, 8 = 1.85, 9 = 1.90, 10 = 2.00, 16 = 2.10, 11 = 2.20, 13 = 2.35, 14 = 2.40. Other IDs are rejected.
CYCLE ASPECT RATIO	Steps to the next aspect ratio in cycleAspectList. The first press selects the first entry; after the last entry it wraps back to the first.
AUTO ASPECT ENABLE / DISABLE	Turns automatic aspect detection on or off.
MEMORY A / B / C / D	Selects memory A, B, C or D (IDs 1 to 4).
ON-SCREEN MESSAGES ON / OFF	Turns Radiance on-screen messages on or off.
PIP OFF	Turns picture-in-picture off.
PIP SELECT	Sends the PIP select key.
PIP SWAP	Swaps the main and PIP images.
PIP MODE	Sends the PIP mode key.

06 FEEDBACK

FEEDBACK	WHAT IT REPORTS
CONNECTED	High when the serial connection to the Radiance is up.
POWER	On or standby, from the power status reply and from each full status report.
INPUT STATUS	Source signal status reported by the Radiance.
VIRTUAL INPUT	The virtual input currently selected.
INPUT CONFIGURATION	Input configuration number in use.
SOURCE RESOLUTION	Source resolution as reported.
SOURCE VERTICAL RATE	Source frame rate as reported.
SOURCE MODE	Interlaced, Progressive or No input.
SOURCE DYNAMIC RANGE	Dynamic range of the incoming source as reported.
SOURCE 3D MODE	3D mode of the source as reported.
SOURCE RASTER ASPECT	Source raster aspect as reported.
SOURCE ASPECT	Current source aspect as a three-digit value (for example 178).
ASPECT RATIO	Current source aspect formatted as a ratio (for example 1.78).
DETECTED RASTER ASPECT	Raster aspect detected by the Radiance.
DETECTED SOURCE ASPECT	Source aspect detected by the Radiance.
ASPECT RATIO PRESETS (ACTIVE STATE)	Each aspect ratio preset shows active when it matches the reported source aspect.
NLS ACTIVE	High when NLS is active.
CURRENT MEMORY	Memory currently in use (A, B, C or D).
MEMORY PRESETS (ACTIVE STATE)	Memory A, B, C or D shows active when it matches the reported memory.
OUTPUT ON	Which outputs are on, as reported.
OUTPUT RESOLUTION	Output resolution as reported.

FEEDBACK	WHAT IT REPORTS
OUTPUT VERTICAL RATE	Output frame rate as reported.
OUTPUT MODE	Interlaced or Progressive.
OUTPUT ASPECT	Output aspect as reported.
OUTPUT COLOR SPACE	Output color space, also available as a text value.
OUTPUT CMS	Output CMS (color management) selection in use.
OUTPUT STYLE	Output style selection in use.
OUTPUT 3D MODE	3D output mode as reported.

07 HOW IT BEHAVES

- The COM port is set to 9600 baud, 8 data bits, no parity, 1 stop bit, no handshake by the module. You do not need to set it in your program.
- When the connection comes up, the module asks the Radiance for its power state and for a full system status report.
- All source, output, aspect, memory and power feedback is read from the full system status report. Feedback changes when the Radiance sends a new report.
- Replies are buffered and split on carriage return + line feed. Other reply types are ignored.
- Arrow key commands are sent only on the hold action of the button. A press without the hold action sends nothing.
- Power Toggle decides what to send from the last power state the Radiance reported.
- Aspect ratio and memory presets show as active based on the status the Radiance reports, not on the last command sent.
- If a field in a status report cannot be read, the error is written to the log and the remaining fields of that report are not updated.

08 TROUBLESHOOTING

IF YOU SEE	TRY THIS
Connected stays low or no feedback ever appears.	Check the cable and that it is on the COM port assigned to the module. Confirm the Radiance RS-232 port is set to 9600 baud, 8N1, no flow control.
Input change is rejected.	Only inputs 1 to 8 are accepted. Input 0 is ignored.
Aspect ratio select or Cycle aspect ratio logs an out-of-range error.	Use only the aspect ratio IDs 2, 6, 8, 9, 10, 11, 13, 14 or 16, both in direct commands and in cycleAspectList.

IF YOU SEE	TRY THIS
The module does not start and reports a missing value.	cycleAspectList is required. Add it to the configuration with at least one aspect ratio ID before using Cycle aspect ratio.

09 NOTES

- Aspect ratio IDs are not consecutive. Use the IDs listed under Aspect ratio select in Controls.
- Memory presets use IDs 1 to 4 for memories A to D.
- This module controls the Radiance over RS-232 only. It does not support IP control.

SUPPORT

Our team of experienced developers is here to ensure your success. Email hello@rivercontrols.com or call +1 855-606-6695, and include your processor serial and order number.