

INTEGRATION MANUAL

DOLBY CP950A

CRESTRON 4-SERIES MODULE

This module controls a Dolby CP950A cinema audio processor from a Crestron 4-Series control system over the network. It recalls macros (inputs and surround formats), sets fader level and mute, recalls reference level presets, and reports the current macro, level, mute, incoming audio format, Dolby Atmos status and optional channel meter levels. It talks to the CP950A's SOAP web service over HTTP on TCP port 9090.

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01 AT A GLANCE

REQUIREMENTS

- Crestron 4-Series control system.
- Dolby CP950A connected to the same network as the control system.
- The control system must be able to reach the CP950A on TCP port 9090 (HTTP).
- The macros you want to recall must already be set up on the CP950A.

CONNECTION

ITEM	DETAIL
Transport	Ethernet (TCP/IP) only. RS-232 is not supported by this module.
Protocol	HTTP POST, SOAP (XML) web service
Port	9090
Service path	/cp/ws/smi/v2/services/SystemManagement_v2_0
Authentication	None. The module does not send a username or password.

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 Dolby CP950A to `ReceiverConfig.json`. Key names are case-sensitive.

KEY	TYPE	DEFAULT	DESCRIPTION
<code>driverName</code>	text	—	Must be River.Dolby.Cp950a.Ip.
<code>ipAddress</code>	text	—	IP address or host name of the CP950A. Required.
<code>enableVuMeters</code>	true/false	false	Optional. Set to true to poll the channel meter levels every 200 ms. Leave it false if your interface does not show meters, to reduce network traffic.
<code>surroundModes</code>	list	—	Required, but may be left empty. Leave it empty to have the module read the macro list from the CP950A when it connects. Or add entries to define the list yourself. Each entry's id is the CP950A macro ID that is recalled when that mode is selected. Mode names must match the macro names on the CP950A exactly, because active-mode feedback is matched by name.
<code>referenceLevels</code>	list	—	Required. Reference level presets. Each entry has an id, name, sortOrder and value. The value is the fader level (0 to 100) that the preset recalls and is required. Number the ids 1, 2, 3 and so on with no gaps. The entry with the highest id is lit when the current level matches none of the other presets, so use it as a Custom or Off-Reference entry.

EXAMPLE ENTRY

Replace the values in angle brackets with your own.

```
[
  {
    "id": 1,
    "name": "<Dolby CP950A name>",
    "sortOrder": 1,
    "driverName": "River.Dolby.Cp950a.Ip",
    "ipAddress": "<device IP address>",
    "enableVuMeters": false,
    "surroundModes": {},
    "referenceLevels": {
      "1": {
        "id": 1,
        "name": "<preset name>",
        "sortOrder": 1,
        "value": "<level 0-100>"
      }
    }
  }
]
```

04 SETUP

1. On the CP950A, set up the macros you need and note their macro IDs and names.
2. Give the CP950A a fixed IP address and confirm the control system can reach it on TCP port 9090.
3. Enter the CP950A address in ipAddress.
4. Choose how to fill the surround mode list. Leave surroundModes empty to read the macro list from the CP950A at startup, or enter each mode with the CP950A macro ID as its id and the exact CP950A macro name.
5. Enter your reference level presets in referenceLevels, numbered 1 to N. Make the last entry (id N) your Custom or Off-Reference entry.
6. Set enableVuMeters to true if your interface shows channel meters. Otherwise set it to false.
7. Load the program and confirm the connection status, current macro name and fader level feedback update.

05 CONTROLS

CONTROL	WHAT IT DOES
POWER ON	Sets the module's power state to on. No command is sent to the CP950A.
POWER OFF	Sets the module's power state to off. No command is sent to the CP950A.

CONTROL	WHAT IT DOES
INPUT SELECT	Recalls a CP950A macro by number. Input 1 recalls macro ID 0, input 2 recalls macro ID 1, and so on (macro ID = input number minus 1).
SURROUND MODE SELECT	Recalls the CP950A macro whose ID matches the selected mode's id. The selected mode is marked active right away, before the CP950A confirms.
VOLUME UP	While held, raises the fader level one step at a time until released. A short press without a hold does not change the level.
VOLUME DOWN	While held, lowers the fader level one step at a time until released. A short press without a hold does not change the level.
SET VOLUME	Sets the fader level directly. The range is 0 to 100. Values outside this range are ignored.
MUTE ON	Mutes the CP950A.
MUTE OFF	Unmutes the CP950A.
MUTE TOGGLE	Mutes or unmutes based on the current mute feedback.
REFERENCE PRESET RECALL	Sets the fader level to the Value of the selected referenceLevels entry.

06 FEEDBACK

FEEDBACK	WHAT IT REPORTS
CONNECTION STATUS	Shows whether the module is connected to the CP950A.
POWER STATE	The module's own power state, set by Power On and Power Off.
INPUT	Current input number, calculated as the current CP950A macro ID plus 1.
INPUT NAME	Name of the current CP950A macro.
SURROUND MODE NAME	Name of the current CP950A macro.
SURROUND MODE STATES	Active state for each surround mode. The mode whose name matches the current macro name is active.
VOLUME LEVEL	Current fader level (0 to 100) reported by the CP950A.
MUTE	Current mute state reported by the CP950A.
AUDIO TYPE	Incoming bitstream audio type text as reported by the CP950A.
DOLBY ATMOS	True when the CP950A reports the incoming bitstream is Dolby Atmos.

07 HOW IT BEHAVES

- All communication is HTTP POST requests to the CP950A's SOAP web service on port 9090. There is no login.
- When the module connects, it starts polling every 1 second for the current macro, fader level, mute state and incoming bitstream information.
- If enableVuMeters is true, it also polls the channel meter levels every 200 ms.
- If surroundModes is empty, the module reads the macro list from the CP950A once when it connects. Modes are listed in the order the CP950A returns them, and each mode's id is the CP950A macro ID.
- If surroundModes has entries, the module uses them and does not read the macro list from the CP950A.
- Inputs and surround modes both recall CP950A macros. Input N recalls macro ID N minus 1. A surround mode recalls the macro ID equal to its id.
- Volume uses a slider (absolute level) model with a range of 0 to 100. The value is sent to the CP950A as its gain value without conversion.
- Volume up and down only ramp while the button is held. Releasing the button stops the ramp.
- The fader level feedback updates as soon as a level is sent, then follows what the CP950A reports in the next poll.
- Power On and Power Off only change the module's power state. The CP950A is not turned on or off.
- Disconnecting stops all polling.

08 TROUBLESHOOTING

IF YOU SEE	TRY THIS
No feedback and connection status stays off.	Check that ipAddress is correct, that the CP950A is powered and on the network, and that TCP port 9090 is open between the control system and the CP950A.
Surround mode list is empty.	When surroundModes is empty, the macro list is read only once when the module connects. Make sure the CP950A is online when the program starts, then restart the program. Or define the modes yourself in surroundModes.
Surround mode buttons recall the right macro but never show as active.	Active-mode feedback is matched by name. Make each mode name in surroundModes match the CP950A macro name exactly.
Input buttons recall the wrong macro.	Input numbers are offset by one from CP950A macro IDs. Input 1 recalls macro ID 0. Use input number = macro ID plus 1.

IF YOU SEE	TRY THIS
The CP950A does not turn on or off.	Power On and Power Off do not send commands to the CP950A. They only change the module's power state.

09 NOTES

- This module supports network control only. It does not support RS-232.

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.