



Marshall VMV-402-3GSH

Crestron SIMPL+ Control Module — Help & Integration Guide

Module	Marshall_VMV_402_3GSH (operational) — SIMPL+ v1.2
User module	Marshall_VMV_402_3GSH.umc
Device	Marshall Electronics VMV-402-3GSH Quad Video Switch / Multi-Viewer
Document	Programmer / Integration Help File
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1. Module Overview

The Marshall VMV-402-3GSH module provides **operational control** of the switcher from Crestron. It is delivered as a GreenPoint TDI user module (Marshall_VMV_402_3GSH.umc) that wraps the SIMPL+ protocol engine and adds convenience feedback logic.

The SIMPL+ core is a protocol engine: it builds command bytes on TX\$ and parses device replies on RX\$. It does not open the network/serial connection — the user module exposes TX\$ / RX\$ for an external TCP/IP Client or serial COM symbol.

v1.2 highlights:

- Real status feedback via the Get Device Info poll (active input, source types, layout, border, labels, label positions, audio, tally, and live label text).
- Gather/dispatch RX handling — responses are framed on the 03 82 85 completion delimiter and routed by type, so new responses are easy to add.
- Audio control: mute on/off and audio source (Channel 1-4, front-panel Stereo, Program Follow).
- CLEAR_LABELS restores the unit's factory default window labels and displays them.
- Debug string outputs removed; a single COMMAND_RECEIVED pulse remains for acknowledgements.
- User module derives discrete feedbacks (LAYOUT_*_FB, AUDIO_SRC_*_FB, TALLY_RED/GREEN/YELLOW_FB, INPUT1/2_IS_SDI_FB) for direct button-feedback joins.
- Built-in automatic polling: set the Poll Interval parameter and hold POLL_ENABLE high, and the module polls Get Device Info on that cadence (IP via Connect-F, or serial held high).

2. Supported Device

Manufacturer	Marshall Electronics
Model	VMV-402-3GSH Quad Video Switch / Multi-Viewer
Inputs	4 video inputs. Inputs 1 & 2 selectable SDI or HDMI; inputs 3 & 4 are SDI only.
Control	Ethernet (TCP) or RS-232 serial
Firmware	Aligned to VMV-402-3GSH control protocol (2025) / FW 8.x, main command byte 0x91.
Module scope	Operational control. Setup remains on the device OSD / web interface.

3. Connection Requirements

Transport	Provided externally by the integrator; the module never opens a socket or COM port.
Ethernet (TCP)	TCP port 9760.
Serial (RS-232)	115200 baud, 8 data bits, no parity, 1 stop bit, no flow control.
Default device IP	192.168.1.110 (static, as shipped) unless reconfigured on the unit.

4. SIMPL Windows Wiring Overview

Drop the user module and a transport symbol (TCP/IP Client or Two-Way Serial COM), then cross-wire the serial signals:

User module	Direction	Transport symbol
TX\$	-->	TCP/IP Client TX\$ (or COM TX\$)
RX\$	<--	TCP/IP Client RX\$ (or COM RX\$)

Set the TCP/IP Client to the device IP, port 9760, and hold its Connect input high.

Automatic polling is built in. Set the **Poll Interval** parameter (seconds) and hold **POLL_ENABLE** high; the module issues Get Device Info on that cadence, so feedback tracks changes made at the web UI or front panel. The first automatic poll occurs within one Poll Interval.

POLL_ENABLE works on either transport: on IP, tie it to the TCP/IP Client **Connect-F** so it polls only while connected. RS-232 has no connect feedback (a COM port is always connected), so on serial tie **POLL_ENABLE high**. **GET_DEVICE_INFO** still forces an immediate manual poll.

Module parameter	Type	Description
Poll Interval	Time (seconds)	Auto-poll cadence while POLL_ENABLE is high (e.g. 2s). First poll within one interval.

5. Digital Inputs

All digital inputs are momentary — the command is sent on the rising edge.

Signal	Type	Description
SELECT_INPUT_1..4	D	Take input 1-4 full screen to program out.
INPUT1_SDI / INPUT1_HDMI	D	Set input 1 source type.
INPUT2_SDI / INPUT2_HDMI	D	Set input 2 source type.
LAYOUT_CROSS	D	2x2 quad (cross) layout.
LAYOUT_TOP_FOCUS / _BOTTOM_FOCUS	D	Focus layouts (one large window).
LAYOUT_LEFT_FOCUS / _RIGHT_FOCUS	D	Focus layouts (one large window).
BORDER_ON / BORDER_OFF	D	Quad border on/off.
LABELS_ON / LABELS_OFF	D	Show / hide quad labels.
LABELS_REFRESH	D	Re-issue Labels ON (display after preloading label text).
TALLY_ON / TALLY_OFF	D	Tally border on/off.
TALLY_RED / TALLY_GREEN / TALLY_YELLOW	D	Tally border color.
AUDIO_MUTE_ON / AUDIO_MUTE_OFF	D	Program audio mute on/off.
AUDIO_SRC_INPUT_1..4	D	Program audio from video channel 1-4.
AUDIO_SRC_STEREO	D	Program audio from front-panel 3.5mm stereo input.
AUDIO_SRC_PROGRAM_FOLLOW	D	Program audio follows the selected program video.
CLEAR_LABELS	D	Restore the unit's default window labels and display them.
GET_DEVICE_INFO	D	Force an immediate poll of the unit (refreshes all feedback).
POLL_ENABLE	D	Hold high for automatic polling at Poll Interval. IP: tie to TCP Connect-F. Serial: tie high.

6. Analog Inputs

Sent on change. Valid 1-6; out-of-range ignored.

Signal	Type	Description
Q1_LABEL_POSITION	A	Quadrant 1 label position.
Q2_LABEL_POSITION	A	Quadrant 2 label position.
Q3_LABEL_POSITION	A	Quadrant 3 label position.
Q4_LABEL_POSITION	A	Quadrant 4 label position.

Value	Position	Value	Position
1	Top Left	4	Bottom Left
2	Top Middle	5	Bottom Middle
3	Top Right	6	Bottom Right

7. String Inputs

Signal	Type	Description
WINDOW0_LABEL\$.. WINDOW5_LABEL\$	S	Per-window label text (max 16 characters). Sends a label packet on change; does not display until LABELS_ON / LABELS_REFRESH.
RX\$	S	Connect from the TCP/IP Client RX\$ (or COM RX\$).

8. Digital Outputs / Feedback

Feedback reflects the unit's state from the last Get Device Info poll (COMMAND_RECEIVED is a momentary pulse). The LAYOUT_*_FB, AUDIO_SRC_*_FB, TALLY_RED/GREEN/YELLOW_FB and INPUT1/2_IS_SDI_FB signals are derived inside the user module for direct button joins.

Signal	Type	Description
COMMAND_RECEIVED	D	Pulses when the unit acknowledges a command (03 81 04).
INPUT1_IS_FB .. INPUT4_IS_FB	D	High for the currently selected program input.
INPUT1_IS_SDI_FB / INPUT1_IS_HDMI_FB	D	Input 1 current source type.
INPUT2_IS_SDI_FB / INPUT2_IS_HDMI_FB	D	Input 2 current source type.
LAYOUT_CROSS_FB	D	High when the cross layout is active.
LAYOUT_TOP_FOCUS_FB / _BOTTOM_FOCUS_FB	D	High for the active focus layout.
LAYOUT_LEFT_FOCUS_FB / _RIGHT_FOCUS_FB	D	High for the active focus layout.
BORDER_IS_ON_FB	D	High when the quad border is on.
LABELS_ARE_ON_FB	D	High when quad labels are on.
TALLY_IS_ON_FB	D	High when the tally border is on.
TALLY_RED_FB / _GREEN_FB / _YELLOW_FB	D	High for the active tally color.
AUDIO_IS_MUTED_FB	D	High when program audio is muted.
AUDIO_SRC_INPUT_1_FB .. _4_FB	D	High for the active audio channel 1-4.
AUDIO_SRC_STEREO_FB	D	High when audio source is the stereo input.
AUDIO_SRC_PROGRAM_FOLLOW_FB	D	High when audio follows the program video.

9. Analog Outputs / Feedback

Each analog feedback is the device's zero-based value + 1, so **0 means "not yet polled."** Because of this, a feedback number is one higher than the matching command's data value — for example audio **Stereo** is command value 4 but reads **5**, and **Program Follow** is command value 5 but reads **6**. Set any Analog Equate thresholds to the feedback (1-based) values.

Signal	Type	Description
ACTIVE_INPUT_FB	A	Selected program input (1-4).
QUAD_PATTERN_FB	A	Active layout (1=Cross, 2=Top, 3=Bottom, 4=Left, 5=Right).
Q1_LABEL_POSITION_FB .. Q4_LABEL_POSITION_FB	A	Reported label position per quadrant (1-6).
AUDIO_SOURCE_FB	A	Audio source (1-4 = video, 5 = stereo, 6 = program follow).
TALLY_COLOR_FB	A	Tally color (1 = Red, 2 = Green, 3 = Yellow).

Analog feedback	Value -> discrete feedback (Analog Equate)
QUAD_PATTERN_FB	1->CROSS 2->TOP 3->BOTTOM 4->LEFT 5->RIGHT
AUDIO_SOURCE_FB	1->INPUT_1 2->INPUT_2 3->INPUT_3 4->INPUT_4 5->STEREO 6->PROGRAM_FOLLOW
TALLY_COLOR_FB	1->RED 2->GREEN 3->YELLOW

10. String Outputs

Signal	Type	Description
TX\$	S	Outgoing command bytes. Connect to the TCP/IP Client TX\$ (or COM TX\$).
WINDOW0_LABEL_FB\$.. WINDOW5_LABEL_FB\$	S	Current window labels reported by the unit.

Note: the v1.1 debug strings (LAST_COMMAND_HEX\$/NAME\$, LAST_RESPONSE_HEX\$) were removed in v1.2.

11. Operational Notes

- The SIMPL+ core is a **protocol engine only**; it does not open TCP sockets internally.
- Wire TX\$ to the transport TX\$ (TCP/IP Client or COM), and the transport RX\$ to RX\$.
- TCP port is 9760. RS-232 is 115200 baud, 8 data bits, no parity, 1 stop bit.
- Automatic polling is built in: set Poll Interval and hold POLL_ENABLE high (tie to Connect-F on IP, or high on serial). GET_DEVICE_INFO still forces a manual poll.
- Input source type (SDI / HDMI) applies only to inputs 1 and 2. Inputs 3 and 4 are SDI only.
- Switching inputs 1-4 is seamless; changing a source type (SDI/HDMI) takes a few seconds.
- Checksums are generated automatically (MOD-256); never hard-code them.

12. Label Text Behavior

- Label text is limited to **16 characters**; longer text is truncated.
- Writing a WINDOWn_LABEL\$ sends the label packet immediately but does not display it.
- Labels appear only after LABELS_ON / LABELS_REFRESH is issued (the unit's display command).
- CLEAR_LABELS restores the factory default labels (Input 1 - HDMI, Input 2 - HDMI, Input 1 - SDI, Input 2 - SDI, Input 3 - SDI, Input 4 - SDI) and displays them — a clean way to wipe custom names.

- There are 6 windows because inputs 1 & 2 each have an HDMI and an SDI source; each window labels independently.

13. Docklight Testing Notes

Raw binary, TCP 9760 or serial 115200 8-N-1.

Function	Send (hex)
Select Input 1	05 91 00 00 96
Layout: Cross	05 91 02 01 99
Border On	05 91 09 01 A0
Labels On / Refresh	05 91 0A 01 A1
Tally On / Yellow	05 91 0E 01 A5 / 05 91 0F 02 A7
Audio Mute On	05 91 10 01 A7
Audio Source: Program Follow	05 91 11 05 AC
Get Device Info	04 12 04 1A

Command reply: 03 81 04 (received) then 03 82 85 (completed). Get Device Info reply: 03 81 84 + 256 state bytes + 03 82 85.

14. Excluded Functions

The operational module does **not** include the following setup functions, which remain on the Marshall front panel OSD or web interface. (Audio control **is** included as of v1.2.)

Not included	Where to perform it
IP / network setup	Marshall OSD / web interface
DHCP / static configuration	Marshall OSD / web interface
Video format configuration	Marshall OSD / web interface
Frame rate configuration	Marshall OSD / web interface
Reset functions	Marshall OSD / web interface
Firmware update functions	Marshall web interface / USB
Web browser setup functions	Marshall web interface
Front panel OSD setup functions	Marshall front panel OSD

15. Revision History

Version	Notes
1.0	Initial operational module.
1.1	Command map aligned to the VMV-402-3GSH 2025 protocol (main byte 0x91); 21-byte label text; Command Received = 03 81 04.

Version	Notes
1.2	Get Device Info polling + full state feedback; gather/dispatch RX handler; audio (mute + source); CLEAR_LABELS restores defaults; debug outputs removed (single COMMAND_RECEIVED). Packaged as the GreenPoint TDI user module with derived discrete feedbacks (LAYOUT_*_FB, AUDIO_SRC_*_FB, INPUT1/2_IS_SDI_FB); built-in poll engine (Poll Interval parameter + POLL_ENABLE); TALLY_RED/GREEN/YELLOW_FB discretes; TX\$/RX\$ transport passthrough.

16. GreenPoint TDI Contact / Support

For support, revisions, or feature requests for this module, contact GreenPoint TDI.

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