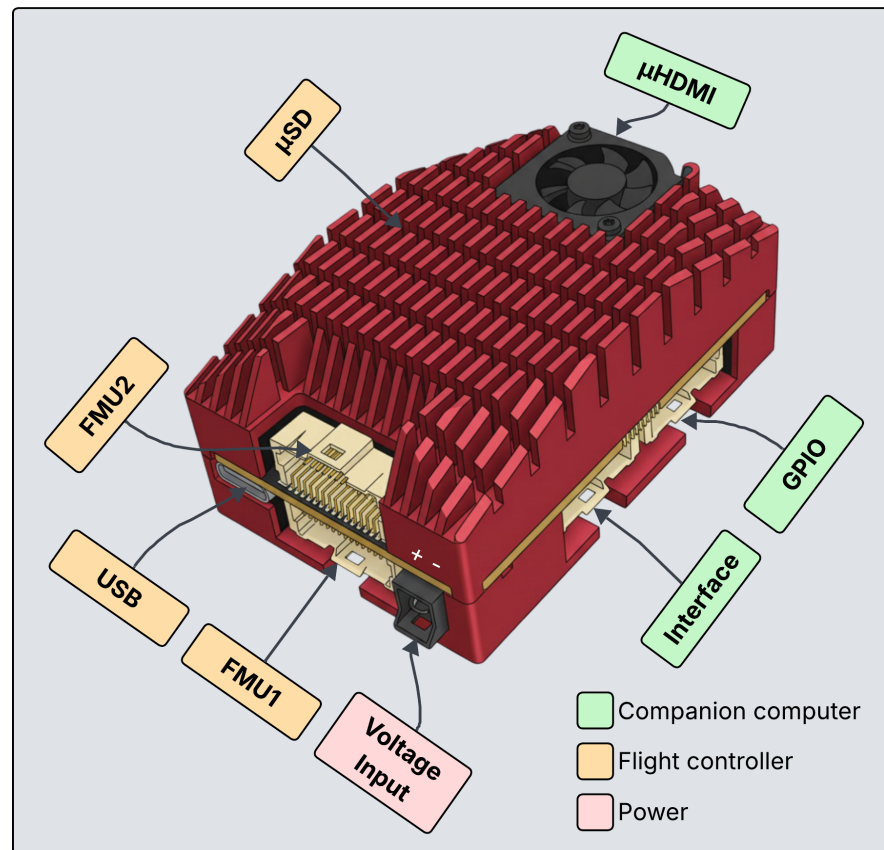


SkyPulse Helios FMU - Pinout & Connections

Machine-readable connector map consolidated from the supplied SkyPulse diagrams and Website Docs.

Safety first

J5 polarity must be verified before power-up. BATT_VOLT and BATT_CURR are sensing inputs only; the documentation states that applying more than 3.3 V to these pins can significantly damage the unit. J3 pins 25 and 28 are direct battery VIN and are unprotected outputs; do not use them to power the unit.



J1 - FMU1

Pin	Signal	Pin	Signal
1	CH1	16	FMU_VDD_3V3
2	GND	17	TX7
3	CH2	18	SAFETY_SWITCH_IN
4	GND	19	RX7
5	CH3	20	GND
6	GND	21	GND
7	CH4	22	GND
8	TX6 / MOSI	23	5V Main
9	CH5	24	BATT_VOLT
10	RX6 / CS	25	CAN_H
11	CH6	26	BATT_CURR
12	CTS6 / SCK	27	CAN_L
13	CH7	28	VDD_5V_BRICK
14	RTS6 / MISO	29	GND
15	CH8	30	VDD_5V_BRICK

J1 sensing warning

BATT_VOLT and BATT_CURR are sensing inputs only. The documentation states a maximum 3.3 V input for these pins.

J2 - FMU2

Pin	Signal	Pin	Signal
1	3.3V Receiver	16	TX2
2	5V Main	17	5V Main
3	RC INPUT	18	RX2
4	TX3	19	TX4
5	RSSI IN	20	CTS2
6	RX3	21	RX4
7	GND	22	RTS2
8	CTS3	23	SCL1
9	3.3V Receiver	24	GND
10	RTS3	25	SDA1
11	TX8 / FrSky_OUT	26	VBUS
12	GND	27	GND
13	RX8 / FrSky_IN	28	FMU USB D-
14	5V Main	29	GND
15	GND	30	FMU USB D+

J3 - Interface

Pin	Signal	Pin	Signal
1	USB OTG	16	ETH1_P / RX+
2	5V Main	17	PCIe_CLK_N
3	CM USB D-	18	ETH2_N
4	GND	19	GND
5	CM USB D+	20	ETH2_P
6	ETH Status	21	PCIe_RX_P
7	GND	22	ETH3_N
8	ETH Link	23	PCIe_RX_N
9	PCIe_CLK_nREQ	24	ETH3_P
10	ETH0_N / TX-	25	VIN - direct battery, unprotected output
11	PCIe_RST	26	GND
12	ETH0_P / TX+	27	PCIe_TX_P
13	GND	28	VIN - direct battery, unprotected output
14	ETH1_N / RX-	29	PCIe_TX_N
15	PCIe_CLK_P	30	A/V OUT (CM4 only)

J3 VIN warning

Pins 25 and 28 are connected directly to the battery input and are unprotected. They are intended as outputs and should not be used to power Helios.

J4 - GPIO

Pin	Signal	Pin	Signal
1	GND	16	GPIO25
2	GND	17	USB3_0_DP
3	GPIO13	18	GPIO10
4	GPIO21	19	USB3_0_DM
5	GPIO11	20	GPIO23
6	GPIO20	21	USB3_0_TX_N
7	USB1 D-	22	GPIO18
8	GPIO16	23	USB3_0_TX_P
9	USB1 D+	24	CM_RX
10	GPIO12	25	GND
11	GND	26	CM_TX
12	GPIO7	27	GPIO3
13	USB3_0_RX_N	28	5V Secondary Output
14	GPIO8	29	GPIO2
15	USB3_0_RX_P	30	3.3V Secondary Output

J4 notes

CM_RX / CM_TX connect to the flight controller UART4 / SERIAL3. The 3.3 V secondary output is marked as low-current, up to 300 mA.

J5 - Power input

Pin	Signal	Notes
1	VIN	Main power input. Verify polarity.
2	GND	Ground.

Voltage-source e conflict

The supplied Website Docs Key Features list 5-36 V, while the supplied J5 power diagram lists 6-36 V (2-8S). The detailed power section says direct battery connection is typical up to 6S and direct 8S requires external filter / protection. Resolve the minimum-voltage wording before public release.

J5 - Power input

1	VIN
2	GND

Input voltage: 6-36v (2-8s)
Power draw: ~12W @ Full load, ~2.7W @ Idle

Molex Nano-fit 45130-0201

Molex Nano-fit 45130-0201

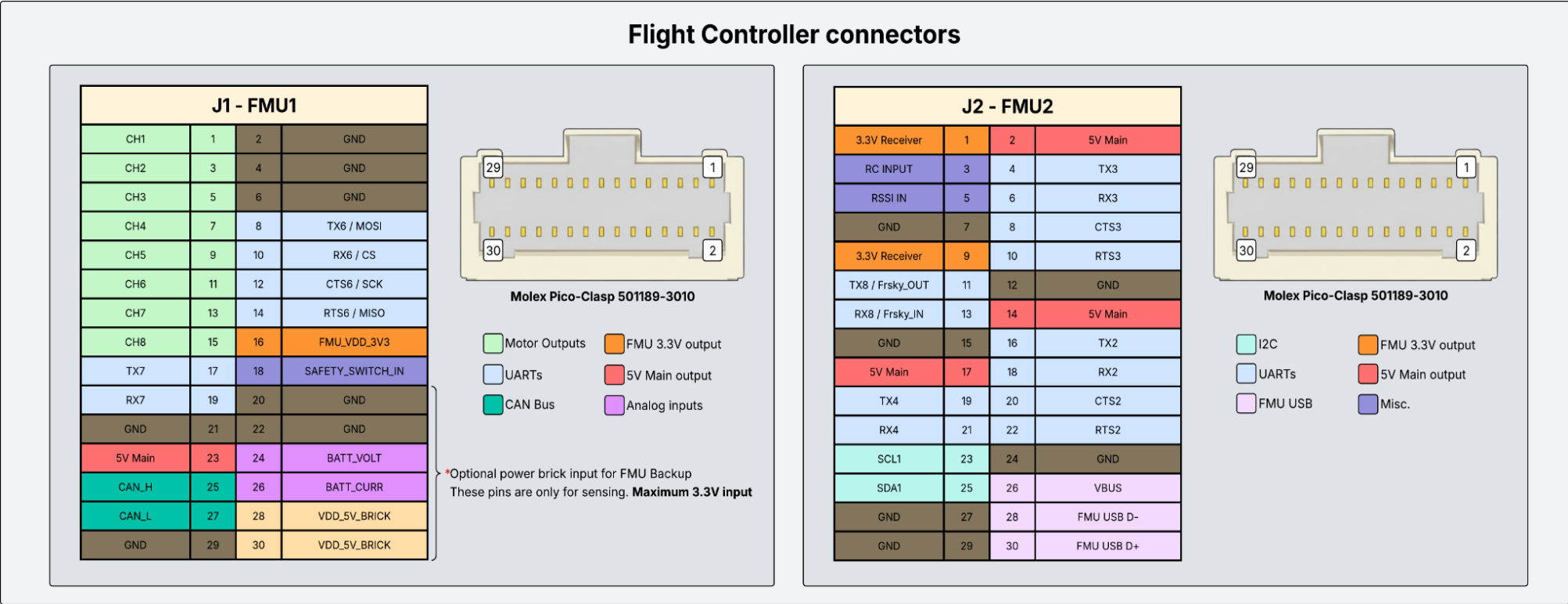
Serial port mapping

UART	ArduPilot Serial	PX4 Serial	Recommended function	Flow control
UART2	Serial 1	/dev/ttyS0	Main Telemetry	Yes
UART3	Serial 2	/dev/ttyS1	GPS Module	Yes
UART4	Serial 3	/dev/ttyS2	Helios companion computer	No
UART6	Serial 4	/dev/ttyS3	RC Receiver	Yes
UART7	Serial 5	System Console	ESC Telemetry / Debug	No
UART8	Serial 6	/dev/ttyS5	Secondary Telemetry / Payload	No

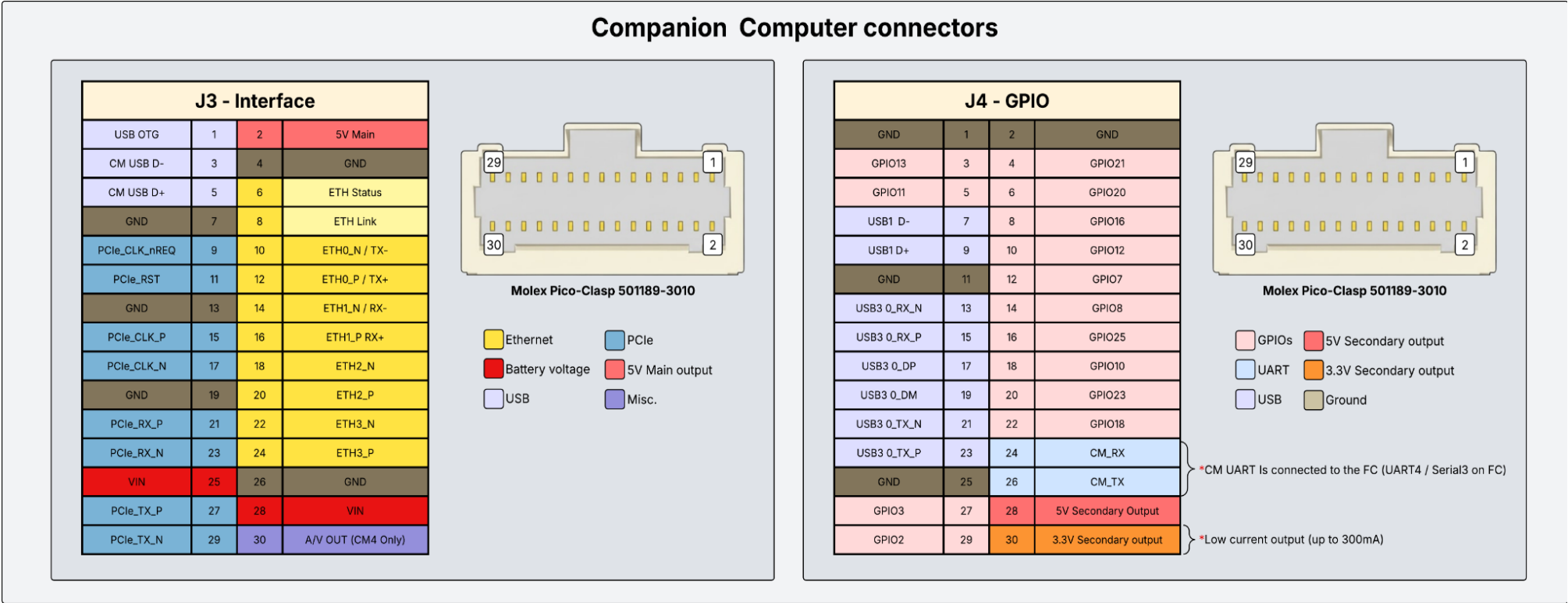
Internal UART link

CM_RX and CM_TX (ttyAMA0) are connected to the flight controller UART4 / SERIAL3 interface.

Original flight-controller connector diagram



Original companion-computer connector diagram



Use the machine-readable tables in this PDF for assistant retrieval; use the original diagram above as a visual cross-check during engineering review.

Source provenance

Primary source: supplied "Website Docs.pdf" dated 2026-08-02 and supplied connector diagrams. Signal names are transcribed from those diagrams; no undocumented pin assignments were added.