



Troubleshooting Manual – PME Eyebrow System Replacement

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1. Purpose

This document has been created to provide a Troubleshooting guide on the details of Kinequip, Inc.'s Marine Control Module (MCM) based Electronic Switching System. This guide does not provide model specific details. Care must be taken to ensure a safe and reliable installation and usage. For an installation guide, please refer to the Installation Manual.

2. Safety

Initial power up and testing should be conducted in a manner which will avoid bodily harm or property damage. Prior to servicing equipment, the power to the equipment should be disconnected at the source.

Continually resetting overcurrent faults can be hazardous, potentially damaging the equipment, wiring, or creating a fire hazard. In case of a circuit overload, first attempt to diagnose what caused the circuit to trip before resetting the circuit breaker. Section 6 below discusses fault conditions in more detail.

3. System Level

Table I below lists the components of the MCM based Electronic Switching System. Figure 1 shows a representative diagram of the system post-installation. Communication between each component in the MCM based Electronic Switching System is achieved through the vessel's CANBUS network.

Table I – System Components

Item	Qty	Part Number	Description
1	1	KFA-SRY-SPEPPM-01	Switch Panel Eyebrow Port
2	1	KFA-SRY-SPESPM-01	Switch Panel Eyebrow Starboard
3	1	KFA-SRY-MCMPF-1	Marine Control Module Forward Eyebrow PME
4	1	KFA-SRY-MCMPA-1	Marine Control Module Aft Eyebrow PME
5	1	KFA-SRY-AHPF-01	MCM to PME Adapter Harness Forward
6	1	KFA-SRY-AHPA-01	MCM to PME Adapter Harness Aft
7	1	KFA-SRY-JPPA-01	Junction Post PME Aft
8	1	KFA-SRY-JPPF-01	Junction Post PME Forward

- **Auxiliary Interface Module (Generator Interface Module)**

Some boats had an Auxiliary Interface Module which sometimes known as the Generator Interface Module. Kinequip's MCM based Electronic Switching System internally incorporates the functionality of the Auxiliary Interface Module and thus the module is no longer required. The Auxiliary Interface Module is to be removed.

- **Diagnostic Module**

Some boats had a Diagnostic Module. Kinequip's MCM based Electronic Switching System internally incorporates the functionality of the Diagnostic Module and thus the module is no longer required. The Diagnostic Module is to be removed. Do not use the connector or harness that was connected into the Diagnostic Module.

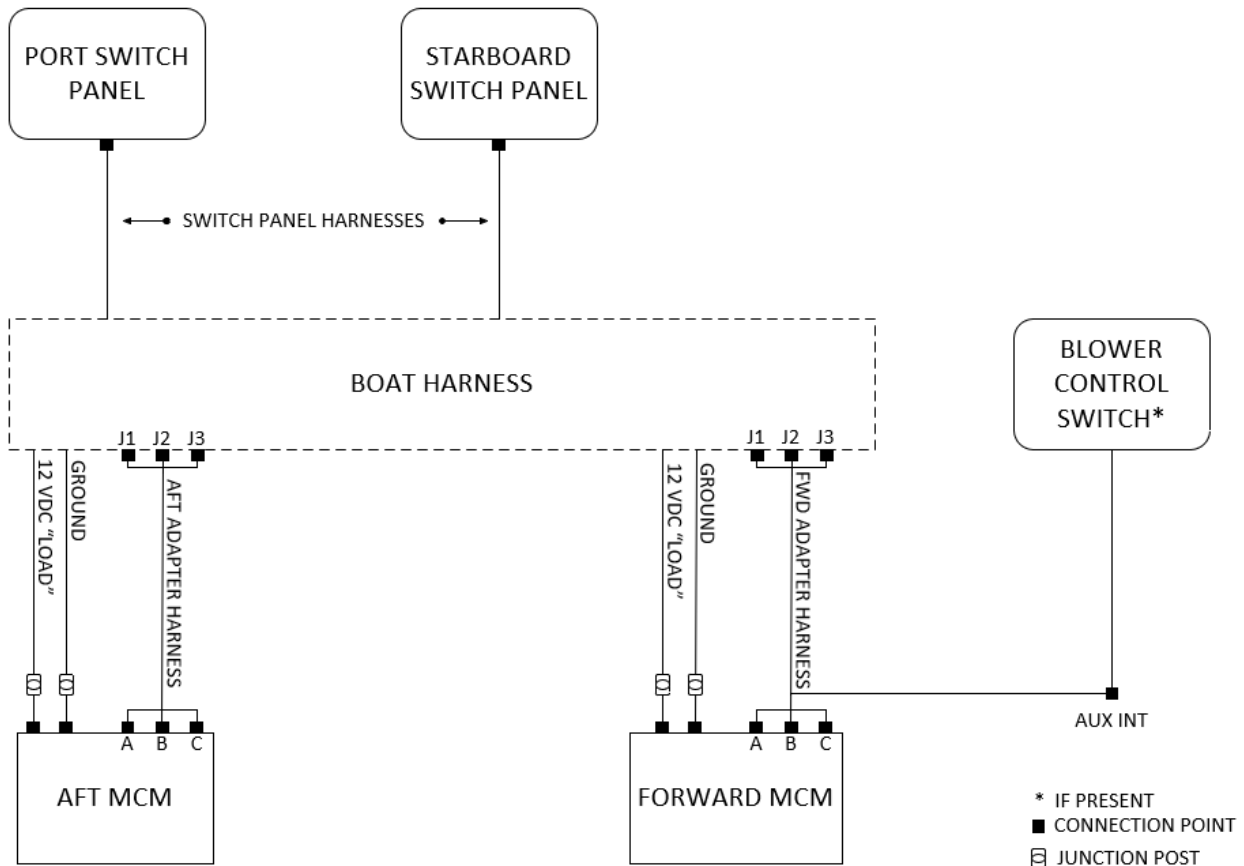


Figure 1 – MCM Based Electronic Switching System Post-Installation

4. Marine Control Modules

Marine Control Modules are factory programmed as either an Aft Module or a Forward Module and cannot be interchanged with each other. Ensure that they are installed in their correct locations.

- Power Connections**

MCM power connections are shown in Table II and Table III below. As seen in the tables, the Aft Module connects to both the Always On (Constant Hot) Bus and the Battery Switched Bus while the Forward Module only connects to the Battery Switched Bus.

Table II – Forward MCM Power Connections

Connection	Forward MCM	Description
+12V LOAD	+12V LOAD	Battery Switched +12 VDC
GROUND	-NEG	Ground connection

Table III – Aft MCM Power Connections

Connection	Aft MCM	Description
+12V LOAD	+12V LINE	Always on +12 VDC
GROUND	-NEG	Ground connection

- Output Connections**

Outputs are in Banks A, B, and C. Each output has an indicator LED that is OFF, GREEN, or RED. Table IV below shows the output state associated with the LED while Figure 2 displays an example bank. Section 8 at



the end of this document tabulates each output connection. The outputs connect to the boat through an Adapter Harness. Ensure that the Aft Adapter Harness is paired with the Aft Module and that the Forward Adapter Harness is paired with the Forward Module.

Table IV – Output LED State

Output LED State	Output Status
OFF	Output is OFF
GREEN	Output is ON
RED	Output over current and is now OFF

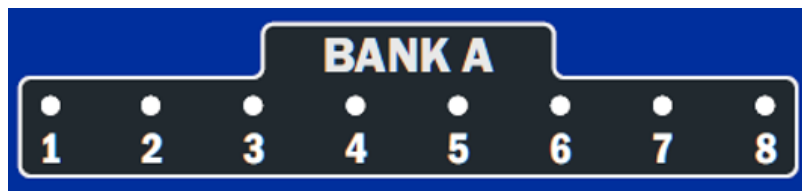


Figure 2 – Example Output Bank

• MCM Status, Fault, and Fault Reset

Each MCM has a blue STATUS and a red FAULT indicator LEDs as shown below in Figure 3. There is also a FAULT RESET button that has a red indicator LED that illuminates when the button is pressed. During power up, the STATUS indicator will blink momentarily and then remain solid after the unit boots up. If this blinking does not occur, check the power to the unit. If an output faults or an error is discovered, the FAULT indicator will illuminate. See Section 6 for more detail on fault conditions.

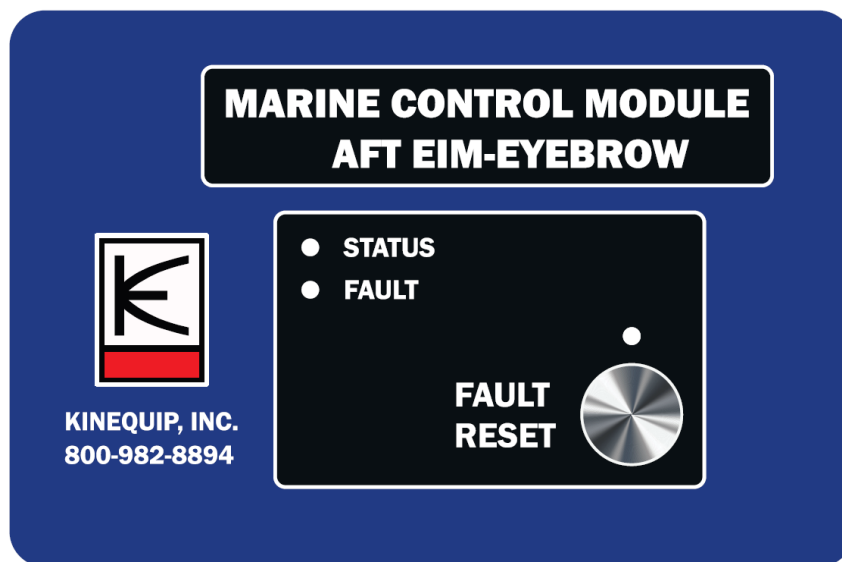


Figure 3 – STATUS, FAULT, and FAULT RESET

5. Switch Panels

The Switch Panels also have a blue STATUS and a red FAULT indicator LEDs. During power up, the STATUS indicator will blink momentarily and then turn off once the panels boots up. If this blinking does not occur,



check the connection to the unit. If an output faults or an error is discovered, the FAULT indicator will illuminate. See Section 6 for more detail on fault conditions.

6. Overcurrent Faults

Each output has a preset maximum allowable current. The preset values can be found below in Section 8. If the measured current exceeds the preset value, that output will enter a fault state and turn the output off. In the event of an overcurrent Fault the output LED will change from green to red. The FAULT indicator on both MCMs and both Switch Panels will also illuminate red.

- **Resetting Faults**

Overcurrent faults can be reset by pressing the FAULT RESET button on either MCM once. This means that one MCM can clear the faults of another, however, only the faulted MCM will indicate which output has faulted through the output LED.

If the overcurrent fault is persistent, the output will fault again and the associated output LED will turn red. Continually resetting overcurrent faults can be hazardous, potentially damaging the equipment, wiring, or creating a fire hazard.

7. Error Code Diagnosis

Error codes can be read from the STATUS and FAULT indicator LEDs. Error codes can be found below in Table V.

Table V – Error Codes

Device	LED	Diagnosis	Resolution Steps
MCM	Blue: Off	Unit does not have power	<ul style="list-style-type: none"> • Ensure power is applied to unit. • Check wiring for loose connection. • Check that the battery switch is On.
MCMs and Switch Panels	Red: Solid	Overcurrent Fault	<ul style="list-style-type: none"> • Verify the device powered by the output is working properly. • Verify the wiring from the MCM to the device is connected properly and no electrical shorts are present. • Press the “Fault Reset” Button on one of the MCM’s.
MCM or Switch Panel	Red: Flashing	Unit is missing communication with at least two modules.	<ul style="list-style-type: none"> • Check wiring to this unit(s) for a bad connection of the communication bus.

8. Adapter Harness Connections



Table VI - AFT PME ADAPTER HARNESS PINOUT

CONNECTOR	PME PIN#	FUNCTION	BREAKER SIZE	MCM PIN #
J1	1	AFT ACCY	15	C2
	2	BATTERY SENSE	-	C3
	3	BILGE PUMP	10	C4
	4	STEREO MEMORY	15	C7
	5	SYSTEM MONITOR	15	C6
	6	HATCHLIFT	24	C1
	7	WINDLASS MAIN	5	A1
	8	WINDLASS MAIN	5	A8
	9	BLOWER #2	15	B4
	10	GROUND	-	C10
	11	GROUND	-	C11
	12	GROUND	-	A11
	13	GROUND	-	A12
	14	GROUND	-	A13
	15	GROUND	-	A14
	J2	16	HATCHLIFT	24
1		ANCHOR/FWD MAST LIGHT	8	B5
2		RUNNING LIGHTS	8	B1
3		COCKPIT LIGHTS	15	B2
4		COMPARTMENT LIGHTS	15	A5
5		BILGE LIGHTS	15	A3
6		BLOWER #1	15	B6
7		TRIM TAB VALVE STBD	15	A2
8		TRIM TAB VALVE PORT	15	A4
9		ACCY 2 (UNDERWATER LIGHTS)	15	B3
10		TRIM TABS MOTOR UP	24	A6
11		GROUND	-	A9
12		GROUND	-	A10
13		GROUND	-	C12
14		GROUND	-	C13
15		GROUND	-	C14
J3	16	TRIM TABS MOTOR DOWN	24	A7
	1	TxRx-	-	B11
	2	TxRx+	-	B12
	3	N/C	-	-
	4	MERCATHODE PORT/STBD	15	C5



Table VII – FWD PME ADAPTER HARNESS PINOUT

CONNECTOR	PME PIN #	Function	BREAKER SIZE	MCM PIN #
J1	1	N/C	-	-
	2	STEREO	3	A5
	3	CONSOLE DIMMER	5	C3
	4	UNSWITCHED ACCY	3	A2
	5	SPOTLIGHT	15	A4
	6	12V RECEPTACLE	15	A3
	7	ACCY #1	3	B7
	8	HORN	10	A6
	9	N/C	-	-
	10	GROUND	-	A9
	11	GROUND	-	A10
	12	GROUND	-	A11
	13	GROUND	-	A12
	14	GROUND	-	A13
	15	GROUND	-	A14
	J2	16	STBD WIPER	8
1		PORT WIPER	8	B3
2		ARCH LIGHTS	5	B8
3		COMPARTMENT LIGHTS	5	C7
4		ANCHOR/AFT MAST LIGHT	8	C6
5		RUNNING LIGHTS	8	B6
6		N/C	-	-
7		WINDSHIELD VENT UP	5	A1
8		WINDSHIELD VENT DOWN	5	A8
9		N/C	-	-
10		WINDLASS CONTROL UP	5	B4
11		GROUND	-	C10
12		GROUND	-	C15
13		GROUND	-	C12
14		GROUND	-	C13
15		GROUND	-	C14
J3	16	WINDLASS CONTROL DOWN	5	B5
	1	TxRx-	-	B11
	2	TxRx+	-	B12
	3	GROUND	-	B15
	4	KEYPAD	5	C4



Table VIII – FWD AUXILLARY INTERFACE PINOUT

PIN #	FUNCTION	MCM PIN #
1	LIGHT (INDICATOR)	C8
2	SWITCH	C2
3	(-) RETURN	C11
4	LIGHT (BACKLIGHT)	N/C