



## DTC P0A05 - Input Power Supply Fault

Product Family	Fault Supported
Orion BMS [Original] (24 - 180 Cell)	YES
Orion BMS 2 (24 - 180 Cell)	YES
Orion JR [Original] (16 Cell)	NO
Orion JR 2 (16 Cell)	NO

### FAULT DESCRIPTION

The Orion BMS has multiple input power sources for operation. Of these inputs that are used, the **minimum voltage must be at least 9vDC** and a **maximum voltage of no more than 30vDC**. If the BMS is not receiving stable voltage this fault will be set indicating that it cannot properly operate.

Fault Code	Fault Description	Possible Trouble Area
P0A05: Subcode 1	Input power supply voltage to the BMS is too low	<ul style="list-style-type: none"> <li>● Main I/O Wire Assembly</li> <li>● Power Supply Fuse</li> <li>● External Power Supply</li> </ul>
P0A05: Subcode 2	Input power supply voltage to the BMS is too high	<ul style="list-style-type: none"> <li>● Main I/O Wire Assembly</li> <li>● Power Supply Fuse</li> <li>● External Power Supply</li> </ul>
P0A05: Subcode 101 / Subcode 201	Input power supply voltage on Remote Module #1 is too low	<ul style="list-style-type: none"> <li>● Main I/O Wire Assembly</li> <li>● Power Supply Fuse</li> <li>● External Power Supply</li> </ul>

P0A05: Subcode 102 / Subcode 202	Input power supply voltage on Remote Module #1 is too high	<ul style="list-style-type: none"> <li>● Main I/O Wire Assembly</li> <li>● Power Supply Fuse</li> <li>● External Power Supply</li> </ul>
P0A05: Subcode 104 / Subcode 204	Input power supply lines on Remote Module #1 differ from main master unit	<ul style="list-style-type: none"> <li>● Main I/O Wire Assembly</li> <li>● Power Supply Fuse</li> <li>● External Power Supply</li> </ul>
P0A05: Subcode 301 / Subcode 401	Input power supply voltage on Remote Module #2 is too low	<ul style="list-style-type: none"> <li>● Main I/O Wire Assembly</li> <li>● Power Supply Fuse</li> <li>● External Power Supply</li> </ul>
P0A05: Subcode 302 / Subcode 402	Input power supply voltage on Remote Module #2 is too high	<ul style="list-style-type: none"> <li>● Main I/O Wire Assembly</li> <li>● Power Supply Fuse</li> <li>● External Power Supply</li> </ul>
P0A05: Subcode 304 / Subcode4204	Input power supply lines on Remote Module #2 differ from main master unit	<ul style="list-style-type: none"> <li>● Main I/O Wire Assembly</li> <li>● Power Supply Fuse</li> <li>● External Power Supply</li> </ul>

## FAULT BEHAVIOR

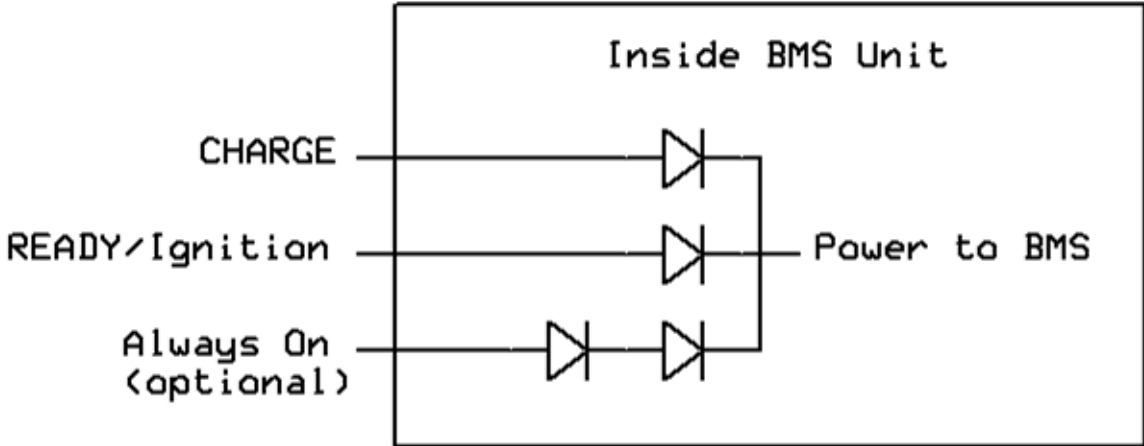
This fault will trigger **Input Power Failsafe Mode** which will inhibit certain BMS functions including **Current Sensor operation** and **Relay Output operation**. This failsafe condition will be cleared automatically once proper power is restored to the BMS.

## FAULT THRESHOLDS

Fault will trigger when <b>ONE</b> of the following conditions are satisfied	(a) <b>OR</b> (b) <b>OR</b> (c) <b>OR</b> (d) <b>OR</b> (e)
(a) Voltage of BMS input power is too low	Input power voltage to the BMS is lower than 9vDC for more than 5 seconds.
(b) Voltage of BMS input power is too high	Input power voltage to the BMS is higher than 32vDC for more than 5 seconds.
(c) Voltage of Remote Module power is too high (if enabled)	Input power voltage to the Remote Module is higher

	than 32vDC for more than 5 seconds.
(d) Voltage of Remote Module power is too low (if enabled)	Input power voltage to the Remote Module is lower than 9vDC for more than 5 seconds.
(e) Input power supply voltage sources energized on the master unit differ from those energized on the Remote Module.	The same input power supply lines (charge power, ready power, always-on power) are not energized the same on the master unit as they are on the Remote Module (one or more may be energized on the Remote Module but not the master, or vice versa).

**WIRING DIAGRAM**



**DIAGNOSTIC STEPS**

<p><b>1.</b></p>	<p><b>Measure the voltage of the power supply to the BMS with a meter.</b></p> <p>Manually measure the voltage being supplied to the BMS. If the measured power input voltage is lower than 12v nominal (9vDC absolute minimum) OR higher than 30vDC then this will need to be resolved. The BMS requires a minimum nominal voltage of 12v on any power inputs. Keep in mind that the voltage may vary at different times (such as a brownout due to an intermittently bad DC:DC converter). High or low operating voltages can be caused by a bad ground connection or corroded connector contacts.</p> <p><b>NOTE:</b> This fault does not apply to the Orion JR / Orion JR 2.</p>
<p><b>2.</b></p>	<p><b>If remote modules are used, verify the input power sources on them.</b></p> <p>Remote modules must share the same power rails as the main master unit, if they are used. This ensures that the Remote Modules and master BMS both power up at exactly the same time, and remain powered up under the same circumstances. If different power sources are energized on the remote module than what are energized on the master BMS, this will set a fault.</p>
<p><b>3.</b></p>	<p><b>Download the freeze frame for the fault code using the BMS Utility.</b></p> <p>The BMS will normally produce a freeze frame on the "Diagnostic Trouble Codes" screen in the BMS Utility when this fault code occurs that contains a comprehensive list of BMS data parameters at the time the fault occurred. <b>It is strongly recommended that the freeze frame be downloaded from the BMS and saved to disk before the fault is cleared again</b> as this data may assist in the future if further diagnostics are required. <u>Additionally this freeze frame data may be requested by Technical Support if further assistance is required.</u></p> <p><b>NOTE:</b> Only Fault Codes with a (F) next to them have freeze frame data available for download. If there is no (F) next to the fault, there is no stored freeze frame available and this step can be skipped.</p> <p>Steps to download the Freeze Frame:</p> <ol style="list-style-type: none"> <li>1) Connect to the BMS using the Orion BMS utility.</li> <li>2) Click the "Diagnostic Trouble Codes" tab at the top.</li> <li>3) Select the correct fault code by clicking on the ID on the left side of the screen to initiate the Freeze Frame retrieval.</li> <li>4) Once the retrieval process is complete, click the "Export (CSV)" button to save the freeze frame data to the computer disk.</li> </ol>
<p><b>4.</b></p>	<p><b>If the problem persists, contact technical support.</b></p> <p>If all above steps fail to determine the cause of the fault then additional support is needed.</p>

	<p><b>Please contact the company or reseller that the BMS was originally purchased from for additional questions, warranty claims, repair requests and technical support.</b></p>
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