

Team #:	P16315	Team Name:
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Revision #:	6	

ID	Engineering Requirements Mapping	Category
9	S4, S6, S11	General System
2	S10, S11	Strain Measurement
9	S4	Strain Measurement
1	S2, S4	Strain Measurement
3	S12	Telemetry System
4	S1	Strain Measurement

SPX Strain Testing

Luke Kranz

Risk Item	Effect
Wired connection failure/power loss.	Data loss & attenuation.
Sensor physical obstruction or drag.	Added system stress, functionality loss.
Gauge soldered lead failure.	Data loss & attenuation.
Sensor life cycle failure.	Measurement loss, out of synch with torque/rotational data.
Telemetry system life cycle failure.	Measurement loss, out of synch with torque/rotational data.
Sensor operational range exceeded.	Data loss & attenuation.

Cause	Likelihood	Severity	Importance	Latest Action to Minimize Risk
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Insufficient waterproofing and/or contact patches at wire nodes.	3	9	27	Minimize wire node quantity or exposure via coated leads or embed leads in epoxy during gauge mounting.
Sensor or sensor mounting strategy causes too much flow resistance.	3	9	27	Optimize sensor part selection for minimum flow interference, test sensor effect on system in realistic operating conditions. Consider sleeve or channel isolation. Rotational Fortitude
Shorted leads or melted coating inhibit strain measurement.	3	6	18	Proper gauge mounting techniques observed although further complications made apparent.
Premature delamination, insufficient waterproofing of plug or gauge-side pins.	1	9	9	Proper gauge mounting techniques observed. Durability testing will be performed.
Power source limits use duration. Waterproofing transmitter housing insufficient.	1	9	9	Design housing to meet or exceed relevant NEMA ratings and select suitable battery. Use waterproof plugs and seal pin connections.
Improper sensor selection. Sensitivity and resolution improvement required.	1	9	9	Select for strain sensor working ranges and impedance, test system functionality in realistic

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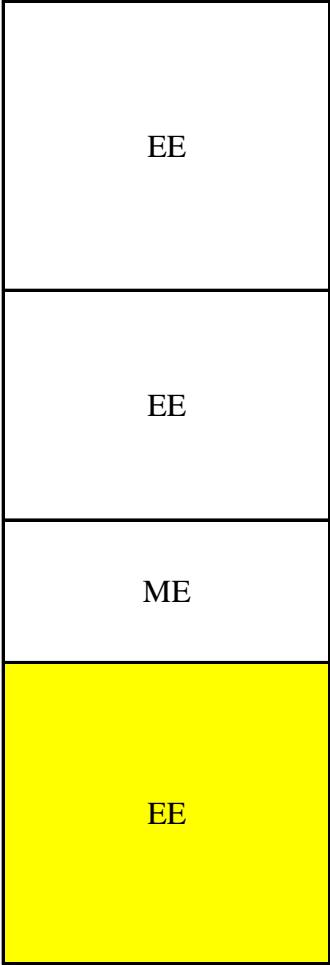
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