

Spreadsheet

NBAR



Interfaces on the initial (engineering) MOOS deployment

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- Purpose**
1. Reliability of data/power cable & mooring mechanical hardware
 2. Reliability/feasability of ROV operations in connection to mooring

Items to monitor

1. Loads
2. Visual wear
3. Sea keeping ability
4. Riser strain relief
 - a. length
 - b. connection position
 - c. connection wear
 - d. connection movement
5. Meteorology using M2 or local NOAA

Responsible Engineer		Signal Description	Supply voltage & current	Sensor interface	Input Sensor range / units	Desired Precision	Desired Accuracy (%) error	Desired ADC resolution	Software Sample frequency	Log Interval				Actual Software Values			Software Conversion	Log/Display range	Log / Send/Event	Software Channel	Return data to shore via RF?	Notes
Software	Hardware	Surface side								current	min	max	avg	ADC	ADC Range	ADC Precision						
Mike Risi	Ed Mellenger	Power System -- 0.1% accuracy & resolution (desired)																				
Mike Risi	Ed Mellenger	Seawater Battery (prototype)																				
Mike Risi	Ed Mellenger	Battery Voltage 1 - chemistry type A	n/a	Analog	0 to 2 VDC	1mV	1%	11-bit	1/min	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to 2 VDC	Log/Send	Serial via DPA	no	0 to 1VDC, up to 4 batteries, simple voltage across a resistor
Mike Risi	Ed Mellenger	Battery Voltage 2 - chemistry type B	n/a	Analog	0 to 2 VDC	1mV	1%	11-bit	1/min	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to 2 VDC	Log/Send	Serial via DPA	no	0 to 1VDC, up to 4 batteries, simple voltage across a resistor
Mike Risi	Ed Mellenger	Battery Voltage 3 - chemistry type C	n/a	Analog	0 to 2 VDC	1mV	1%	11-bit	1/min	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to 2 VDC	Log/Send	Serial via DPA	no	0 to 1VDC, up to 4 batteries, simple voltage across a resistor
Mike Risi	Ed Mellenger	Battery Voltage 4 - chemistry type D	n/a	Analog	0 to 2 VDC	1mV	1%	11-bit	1/min	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to 2 VDC	Log/Send	Serial via DPA	no	0 to 1VDC, up to 4 batteries, simple voltage across a resistor
Mike Risi	Ed Mellenger	Battery (possibly two battery banks up to 8 batteries)																				
Mike Risi	Ed Mellenger	Battery Current Sensor Enable	n/a	Digital	n/a	n/a	n/a	n/a	1/day?	n/a	n/a	n/a	n/a					On/Off	n/a	Serial via DPA	no	Turns on the current sensors prior to take current measurements
Mike Risi	Ed Mellenger	Battery Current 1	n/a	Analog	TBD	7.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	-10 to +20 A	Log/Send	Serial via DPA	no	Current to voltage measurement
Mike Risi	Ed Mellenger	Battery Current 2	n/a	Analog	TBD	7.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	-10 to +20 A	Log/Send	Serial via DPA	no	Current to voltage measurement - leave if we can
Mike Risi	Ed Mellenger	Battery Current 3	n/a	Analog	TBD	7.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	-10 to +20 A	Log/Send	Serial via DPA	no	Current to voltage measurement - leave if we can
Mike Risi	Ed Mellenger	Battery Current 4	n/a	Analog	TBD	7.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	-10 to +20 A	Log/Send	Serial via DPA	no	Current to voltage measurement - leave if we can
Mike Risi	Ed Mellenger	Battery Current 5	n/a	Analog	TBD	7.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	-10 to +20 A	Log/Send	Serial via DPA	no	Current to voltage measurement - leave if we can
Mike Risi	Ed Mellenger	Battery Current 6	n/a	Analog	TBD	7.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	-10 to +20 A	Log/Send	Serial via DPA	no	Current to voltage measurement - leave if we can
Mike Risi	Ed Mellenger	Battery Current 7	n/a	Analog	TBD	7.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	-10 to +20 A	Log/Send	Serial via DPA	no	Current to voltage measurement - leave if we can
Mike Risi	Ed Mellenger	Battery Current 8	n/a	Analog	TBD	7.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	-10 to +20 A	Log/Send	Serial via DPA	no	Current to voltage measurement - leave if we can
Mike Risi	Ed Mellenger	Battery Voltage	n/a	Analog	0 to between 8 & 16 VDC	10mV	0.10%	11-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to between 8 & 16 VDC	Log/Send	Serial via DPA	no	
Mike Risi	Ed Mellenger	Water detection 1	n/a	Analog	0 to +5V	100mV	5%	6-bit	1/sec	instantaneous	n/a	n/a	n/a	12-bit	10V	2.441mV	Linear Scale	0 to +5V	Log/Send/Event	Serial via DPA	no	Is there moisture in the battery case
Mike Risi	Ed Mellenger	Water detection 2	n/a	Analog	0 to +5V	100mV	5%	6-bit	1/sec	instantaneous	n/a	n/a	n/a	12-bit	10V	2.441mV	Linear Scale	0 to +5V	Log/Send/Event	Serial via DPA	no	Is there moisture in the battery case
Mike Risi	Ed Mellenger	Water detection 3	n/a	Analog	0 to +5V	100mV	5%	6-bit	1/sec	instantaneous	n/a	n/a	n/a	12-bit	10V	2.441mV	Linear Scale	0 to +5V	Log/Send/Event	Serial via DPA	no	Is there moisture in the battery case
Mike Risi	Ed Mellenger	Water detection 4	n/a	Analog	0 to +5V	100mV	5%	6-bit	1/sec	instantaneous	n/a	n/a	n/a	12-bit	10V	2.441mV	Linear Scale	0 to +5V	Log/Send/Event	Serial via DPA	no	Is there moisture in the battery case
Mike Risi	Ed Mellenger	Water detection 5	n/a	Analog	0 to +5V	100mV	5%	6-bit	1/sec	instantaneous	n/a	n/a	n/a	12-bit	10V	2.441mV	Linear Scale	0 to +5V	Log/Send/Event	Serial via DPA	no	Is there moisture in the battery case
Mike Risi	Ed Mellenger	Water detection 6	n/a	Analog	0 to +5V	100mV	5%	6-bit	1/sec	instantaneous	n/a	n/a	n/a	12-bit	10V	2.441mV	Linear Scale	0 to +5V	Log/Send/Event	Serial via DPA	no	Is there moisture in the battery case
Mike Risi	Ed Mellenger	Water detection 7	n/a	Analog	0 to +5V	100mV	5%	6-bit	1/sec	instantaneous	n/a	n/a	n/a	12-bit	10V	2.441mV	Linear Scale	0 to +5V	Log/Send/Event	Serial via DPA	no	Is there moisture in the battery case
Mike Risi	Ed Mellenger	Water detection 8	n/a	Analog	0 to +5V	100mV	5%	6-bit	1/sec	instantaneous	n/a	n/a	n/a	12-bit	10V	2.441mV	Linear Scale	0 to +5V	Log/Send/Event	Serial via DPA	no	Is there moisture in the battery case
Mike Risi	Ed Mellenger	Solar panels (each of four)																				
Mike Risi	Ed Mellenger	Array Current North	n/a	Analog	TBD	2.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	0 to 10 A	Log/Send	Serial via DPA	no	Current to voltage measurement
Mike Risi	Ed Mellenger	Array Current East	n/a	Analog	TBD	2.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	0 to 10 A	Log/Send	Serial via DPA	no	Current to voltage measurement
Mike Risi	Ed Mellenger	Array Current South	n/a	Analog	TBD	2.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	0 to 10 A	Log/Send	Serial via DPA	no	Current to voltage measurement
Mike Risi	Ed Mellenger	Array Current West	n/a	Analog	TBD	2.5mA	0.10%	12-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	0 to 10 A	Log/Send	Serial via DPA	no	Current to voltage measurement
Mike Risi	Ed Mellenger	Array Voltage North	n/a	Analog	0 to 50 VDC	25mV	0.10%	11-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to 50 VDC	Log/Send	Serial via DPA	no	
Mike Risi	Ed Mellenger	Array Voltage East	n/a	Analog	0 to 50 VDC	25mV	0.10%	11-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to 50 VDC	Log/Send	Serial via DPA	no	
Mike Risi	Ed Mellenger	Array Voltage South	n/a	Analog	0 to 50 VDC	25mV	0.10%	11-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to 50 VDC	Log/Send	Serial via DPA	no	
Mike Risi	Ed Mellenger	Array Voltage West	n/a	Analog	0 to 50 VDC	25mV	0.10%	11-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to 50 VDC	Log/Send	Serial via DPA	no	
Mike Risi	Ed Mellenger	Load resistor (lost potential energy)	n/a	Analog	0 to 16 VDC	10mV	0.10%	11-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to 16 VDC	Log/Send	Serial via DPA	no	simple voltage across a resistor after a 12V zener
Mike Risi	Ed Mellenger	Wind Turbine																				
Mike Risi	Ed Mellenger	Load resistor (lost potential energy)	n/a	Analog	0 to 16 VDC	10mV	0.10%	11-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to 16 VDC	Log/Send	Serial via DPA	no	simple voltage across a resistor after a 12V zener
Mike Risi	Ed Mellenger	Power Feed (NMC)																				
Mike Risi	Ed Mellenger	Current	n/a	Analog	TBD	2mA	TBD	12-bit	10/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	0 to 5 A	Log/Send	Serial via DPA	no	Current to voltage measurement
Mike Risi	Ed Mellenger	Cable Feed																				
Mike Risi	Ed Mellenger	Cable Current	n/a	Analog	TBD	0.25mA	TBD	12-bit	10/sec	n/a	1 hr	1 hr	1 hr	12-bit	-10, +10V	4.883mV	Linear Scale	0 to 1 A	Log/Send	Serial via DPA	no	Current to voltage measurement
Mike Risi	Ed Mellenger	Cable Voltage	n/a	Analog	0 to 500 VDC	1V	0.10%	9-bit	1/sec	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Linear Scale	0 to 500 VDC	Log/Send	Serial via DPA	no	
Mike Risi	Ed Mellenger	Ground fault	n/a	Analog	-1mA to +1mA	5mV	0.10%	10-bit	interrupt	instantaneous	n/a	n/a	n/a	12-bit	10V	2.441mV	Linear Scale	0 to +5V	Log/Send/Event	Serial via DPA	no	
Mike Risi	Ed Mellenger	Environmental (power housing)																				
Mike Risi	Ed Mellenger	Pwr Hsg Temp	n/a	Analog	TBD	2c	1%	6-bit	1/min	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	Calib. Lkup Tbl	-25 to +75c	Log/Send	Serial via DPA	no	
Mike Risi	Ed Mellenger	Pwr Hsg Humidity	n/a	Analog	TBD	5%	1%	5-bit	1/min	n/a	1 hr	1 hr	1 hr	12-bit	10V	2.441mV	???	0 to 100%	Log/Send	Serial via DPA	no	
Mike Risi	Ed Mellenger	Controller with data storage																				
Mike Risi	Ed Mellenger	Pwr Sys Control Functions																				
Mike Risi ?	Mark Chaffey	Heave Wave sensor	12-14 VDC @ 45mA	Serial															Serial via DPA	yes	Triaxys	
Mike Risi ?	Mark Chaffey	1 Spectral Analysis Statistics																				
Mike Risi ?	Mark Chaffey	Significant Wave Height (Hmo)			not specified	not specified	2%	n/a	35 minutes	n/a	n/a	n/a	35 minutes					0.000 to 9.999m	Log/Send	n/a		See Triaxys manual
Mike Risi ?	Mark Chaffey	Peak Period (Tp, Tps)			not specified	not specified	2%	n/a	35 minutes	n/a	n/a	n/a	35 minutes					0.000 to 9.999s	Log/Send	n/a		See Triaxys manual
Mike Risi ?	Mark Chaffey	Mean Spectral Period (Tz)			not specified	not specified	2%	n/a	35 minutes	n/a	n/a	n/a	35 minutes					see manual	Log/Send	n/a		See Triaxys manual