





Integration Checklist

Document Number 3166-50213		Title/Description Surface_Mooring_Initial_Battery_Sources_Checklist	
Author G Yonkoske	Approved by S. N. White	Revision 1-03	Effective Date 1/20/17
Part Number Various	Name/Description Surface Mooring		PN Rev. N/A
1 Reference Documents			
N/A			
2 Definitions & Acronyms			
GPS	Global Positioning System		
ISU	Iridium Subscriber Unit		
PSC	Power System Controller		
PuTTY	PuTTY is an SSH and telnet client		
RFM	Radio Frequency Modem		
RTE	Radar Target Enhancer		
SBD	Short Burst Data		
SSH	Secure Shell		
STC	Sensor Telemetry Controller		
Wi-Fi	Wi-Fi is a wireless local area network technology		
3 Training Requirements			
None			
4 Required PPE and Safety Notes			
Ensure testing is performed in compliance with applicable WHOI/OSU safety protocols, OOI EH&S Plan (1006-00000) and CGSN EH&S Plan (3101-00009).			
Read and follow all safety warnings in the MSDS.			
5 Required Tools & Equipment			
Adjustable DC Power Supply capable of 24 VDC at 8 Amps			
Test computer – Windows PC with 1 USB and 1 Ethernet port			
1 USB to serial adapter with USB cable			
1 Ethernet patch cable and 1 multiport Ethernet switch			
Multimeter			
Additional test cables as identified in Appendix A			
6 Notes			
Acceptable tolerance on all voltage measurements is +/- 0.5 VDC.			
Acceptable tolerance on all continuity measurements is < 1 ohm.			
7 Handling Instructions			
WARNING – Follow Electrostatic Discharge handling precautions			
8 Preparation & Information Tracking			
Save the Procedure tab of this document as 3166-50213-XXXXX where XXXXX is the next sequential number in Vault: Vault\Project_Files\Documentation\I&V\PLATFORM\3166_5_Surface_Mooring\Completed_Checklists.			
The document is hereafter referred to as the results document.			
Record the XXXXX number in the Document Number field (Document_Number-XXXXX) at the top of the results document.			
Modify the following document information in the “Microsoft Excel, Title Properties” field where <#> represents the mooring (i.e. CP03ISSM) and <date> represents the deployment date (i.e. 2014-11-17) : <#>_<date>_Surface_Mooring_Initial_Battery_Sources_Checklist. To modify this field in Microsoft Excel click File >Properties >Show Document Panel.			
Record the Mooring and Deployment date at the top of the results document.			
Fill in the Test/Inspection Conductor’s Name and the Test Date at the top of the results document.			
Fill in the Test and Measurement Equipment field on the results document.			
9 Test			
Conduct the test steps identified in the "Test Procedure" tab			
10 Test Artifacts			
Copy the data (syslog) file(s) created during testing. Embed the file(s) into the Integration Checklist Results file.			
Upload the data file and the completed results document to the appropriate deployment folder on Vault: Vault\Project_Files\Documentation\I&V\PLATFORM\ 3166_5_Surface_Mooring\Completed_Checklists			
Delete any unnecessary files from the computer Desktop.			
Notify cgsncm@whoi.edu to lock documents in Vault and release to Alfresco.			

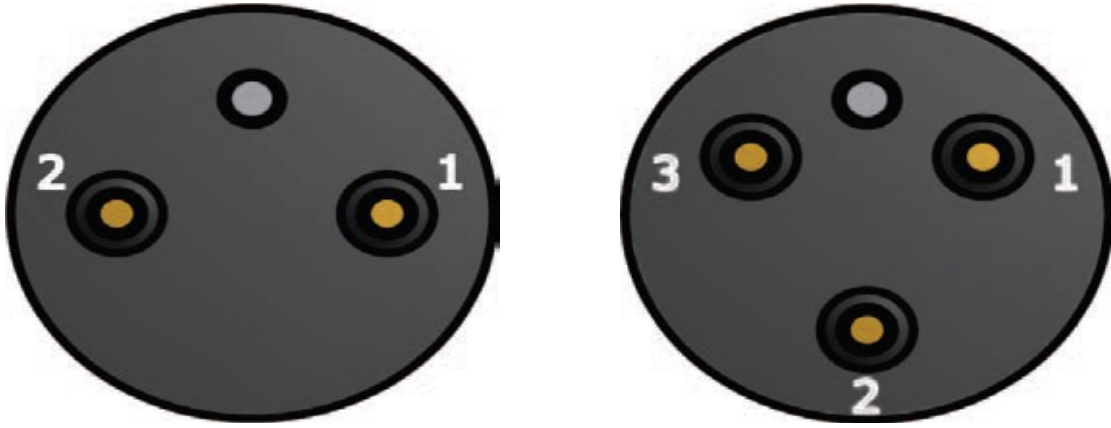
 		<h2>Integration Checklist</h2>	
Document Number 3166-50213-XXXXX		Title/Description Surface_Mooring_Initial_Battery_Sources_Checklist	
Mooring and Deployment Date		Test/Inspection Conductor's Name and Date	
Objective	Expected Results	Pass/Fail	Operation
			<p>This procedure assumes that all subassemblies used have already been tested for proper operation. It also assumes that the battery tray and batteries have been wired properly and installed within the well and are fully charged. The Leak Detectors are installed. Additionally, the first shelf containing the METBK(s), FBB Enclosure, Backup Batteries, and the WAVSS have been properly installed.</p> <p>Temporarily, the Platcon, ESE, (2) DGH's, (2) RKI Hydrogen Sensors, and PSC should be located on a table next to the well, ready for interconnections to avoid having to remove the top shelf in the event a problem down below is discovered while bringing the systems up. Drape the Battery and Leak Detector cables over the side of the buoy well for now as they will be connected later in this procedure.</p> <p>The Telemetry/Sensor tower should be nearby to allow connections as this test progresses, as should the NSIF and MFN DCL bottles.</p>
			<p>These tests can be done on a bench as opposed to within the well if desired.</p>
Test & Measurement Equipment	Serial Number	Calibration date	<p>Record the information regarding the specific test and measurement equipment used for this procedure</p>
Data File Name from Test Conduct	Data File Subject		
Capture "cg/data/syslog" files and/or "screen shots" as needed			<p>Record the file names and subject of the data files recorded during the test conduct</p>
Preliminary Inspection			

Document Number		Title/Description	
3166-50213-XXXXX		Surface_Mooring_Initial_Battery_Sources_Checklist	
Mooring and Deployment Date		Test/Inspection Conductor's Name and Date	
Objective	Expected Results	Pass/Fail	Operation
			Inspect all connectors before trying to mate them. Ensure they are clean and free of debris. Ensure the pins are straight. Do not force the connectors to mate; if they do not mate easily, something is wrong with keying or, possibly, bent pins
Initial Setup			
Ensure that the cables are all connected as required			Check 'Riser' connections (including Status panel) to Platcon. Make sure the magnet is installed to the face of the Riser J Box panel
			Check 'sensor' cable connections to Platcon (internal and J Box)
			Check Telemetry J Box connections to the Platcon
			Connect test computer to available ethernet port on the Platcon
Initial Power Application			
			Ensure cable 3701-00216 connection P5 to J5 on the PSC
			Ensure cable 3701-00216 is connection P81 to J81 on the Platcon
			Ensure all battery cables are connected to the PSC
			Confirm 2 green LEDs are illuminated on the Status panel indicating the presence of buss voltage on both CPMs
			Remove the magnet from the Riser panel
			Observe LEDs on the Riser panel and master CPM to confirm power is enabled
			After a few minutes, the system will have loaded normally and the operator can log on to CPM1 with the test computer
Check battery voltage			
Note: The charging voltage needs to be greater than the battery voltage in order to register a charging condition.	Nominally 24vdc		Using a multimeter, measure the battery voltage at pin 1(+) and pin 3 (-) of the Ext Power connectors on the Power J-Box Connector Panel. Note: Ext Power connector pins 1 & 2 (+) and pins 3 & 4 (-) Record the voltage _____ vdc.
Check battery charge percentage			
Note: The PV1-4 and WIND1-2 relays are automatically connected if the battery charge is <90%.			At the test PC, review the battery charge % at the CPM1 Power Controller Status display.
Check input to PV1-4			
This will check the +12vdc input power charging from each of the PV inputs			Note: If battery has >90% charge, an override command needs to be issued to close the relay connections to the batteries. If battery has <90% charge, all charging inputs are enabled automatically and should be shut off now.

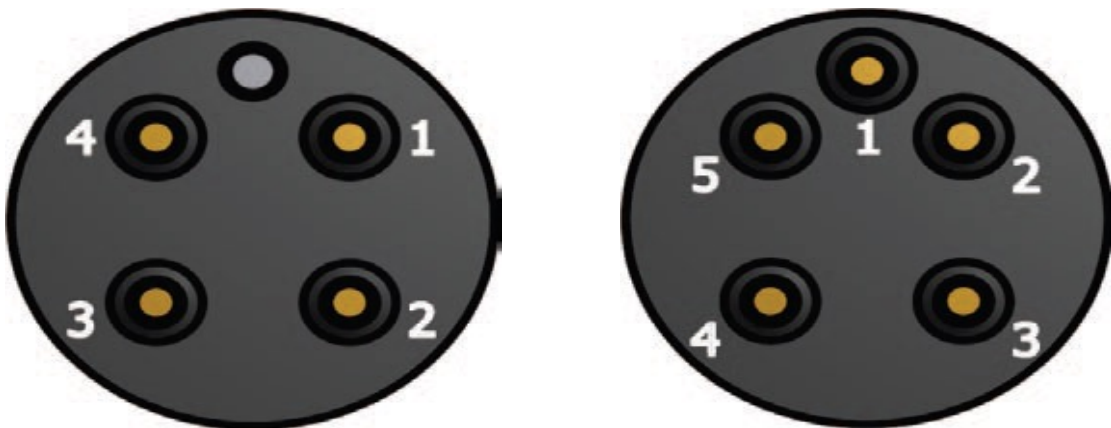
Document Number		Title/Description	
3166-50213-XXXXX		Surface_Mooring_Initial_Battery_Sources_Checklist	
Mooring and Deployment Date		Test/Inspection Conductor's Name and Date	
Objective	Expected Results	Pass/Fail	Operation
			At CPM1, enter _psc disconnect all in ucmd.
			Set the external power supply for 12vdc range. Adjust to power supply output to be 50% of the battery voltage measured plus 0.5vdc. Using test cables with alligator clips, connect the power supply (+) to PV1 pin 1 and (-) to pin 2 of PV1 on the Power J-Box connector panel .
			Issue an override command to close the PV-1 relay connection. At CPM1 using ucmd, connect the PV1 input _psc connect pv1
Check 12vdc input charge to PV1	Charge rate displayed on the Test PC will be approximately 50% of the rate displayed on the external power supply.	Pass/Fail	Verify the charging rate that is displayed on the CPM1 Power Controller Status window for PV-1 input is approximately 50% of the current drawn from the power supply. When this step is completed, disconnect the PV1 relay _psc disconnect pv1
			Set the external power supply for 12vdc range. Adjust to power supply output to be 50% of the battery voltage measured plus 0.5vdc. Using test cables with alligator clips, connect the power supply (+) to PV2 pin 1 and (-) to pin 2 of PV2 on the Power J-Box connector panel .
			Issue an override command to close the PV-2 relay connection. At CPM1 using ucmd, connect the PV2 input _psc connect pv2
Check 12vdc input charge to PV2	Charge rate displayed on the Test PC will be approximately 50% of the rate displayed on the external power supply.	Pass/Fail	Verify the charging rate that is displayed on the CPM1 Power Controller Status window for PV-2 input is approximately 50% of the current drawn from the power supply. When this step is completed, disconnect the PV2 relay _psc disconnect pv2
			Set the external power supply for 12vdc range. Adjust to power supply output to be 50% of the battery voltage measured plus 0.5vdc. Using test cables with alligator clips, connect the po
			Issue an override command to close the PV-3 relay connection. At CPM1 using ucmd, connect the PV3 input _psc connect pv3
Check 12vdc input charge to PV3	Charge rate displayed on the Test PC will be approximately 50% of the rate displayed on the external power supply.	Pass/Fail	wer supply (+) to PV3 pin 1 and (-) to pin 2 of PV3 on the Power J-Box connector panel . Verify the charging rate that is displayed on the CPM1 Power Controller Status window for PV-3 input is approximately 50% of the current drawn from the power supply. When this step is completed, disconnect the PV3 relay _psc disconnect pv3
			Set the external power supply for 12vdc range. Adjust to power supply output to be 50% of the battery voltage measured plus 0.5vdc. Using test cables with alligator clips, connect the power supply (+) to PV4 pin 1 and (-) to pin 2 of PV4 on the Power J-Box connector panel .
			Issue an override command to close the PV-4 relay connection. At CPM1 using ucmd, connect the PV4 input _psc connect pv4

Document Number		Title/Description	
3166-50213-XXXXX		Surface_Mooring_Initial_Battery_Sources_Checklist	
Mooring and Deployment Date		Test/Inspection Conductor's Name and Date	
Objective	Expected Results	Pass/Fail	Operation
Check 12vdc input charge to PV4	Charge rate displayed on the Test PC will be approximately 50% of the rate displayed on the external power supply.	Pass/Fail	Verify the charging rate that is displayed on the CPM1 Power Controller Status window for PV-4 input is approximately 50% of the current drawn from the power supply. When this step is completed, disconnect the PV4 relay _psc disconnect pv4
Check input to WIND1-2			
This will check the +24vdc input power charging from each of the WIND inputs			Note: If battery has >90% charge, an override command needs to be issued to close the relay connections to the batteries. If battery has <90% charge, all charging inputs are enabled automatically.
Check WT1 enable pin		Pass/Fail	Pin 3 (enable) of the WIND1 connector is open (not connected) when the relay is open. It is shorted to pin 2(-) when the relay is closed. Verify that the relay is open by entering _psc disconnect wt1 at CPM1 using ucmd. Using a multimeter, verify that pin 2 and pin 3 are not connected.
			Set the external power supply for 24vdc range. Adjust to power supply output to be the battery voltage measured plus 0.5vdc. Using test cables with alligator clips, connect the power supply (+) to WIND1 pin 1 and (-) to pin 2 of WIND1 on the Power J-Box connector panel .
		Pass/Fail	At CPM1 using ucmd, connect the WIND1 input _psc connect wt1. Using a multimeter, verify that pin 2 and pin 3 are shorted together.
Check 24vdc input charge to WIND1	Charge rate displayed on the CPM1 Power Controller Status window will be approximately the same as the rate displayed on the external power supply.	Pass/Fail	Verify the charging rate that is displayed on the CPM1 Power Controller Status window for WIND1 input is approximately the same as the current draw from the power supply. When this step is completed, disconnect the wt1 relay _psc disconnect wt1
Check WT2 enable pin		Pass/Fail	Pin 3 (enable) of the WIND2 connector is open (not connected) when the relay is open. It is shorted to pin 2 (-) when the relay is closed. Verify that the relay is open by entering _psc disconnect wt2 at CPM1 using ucmd. Using a multimeter, verify that pin 2 and pin 3 are not connected.
			Set the external power supply for 24vdc range. Adjust to power supply output to be the battery voltage measured plus 0.5vdc. Using test cables with alligator clips, connect the power supply (+) to pin 1 and (-) to pin 2 of WIND2 on the Power J-Box connector panel .
		Pass/Fail	At CPM1 using ucmd, connect the WIND2 input _psc connect wt2. Using a multimeter, verify that pin 2 and pin 3 are shorted together.

Document Number		Title/Description	
3166-50213-XXXXX		Surface_Mooring_Initial_Battery_Sources_Checklist	
Mooring and Deployment Date		Test/Inspection Conductor's Name and Date	
Objective	Expected Results	Pass/Fail	Operation
Check 24vdc input charge to WIND2	Charge rate displayed on the CPM1 Power Controller Status window will be approximetely the same as the rate displayed on the external power supply.	Pass/Fail	Verify the charging rate that is displayed on the CPM1 Power Controller Status window for WIND2 input is approximately the same as the current draw from the power supply. When this step is completed, disconnect the wt2 relay _psc disconnect wt2
			Note: At the completion of this Battery Source Checklist procedure, ensure that the overrides are cleared. <u>_psc override_off all</u>



Face view (male)



SubConn Circular 2, 3, 4 and 5 pins connector pinouts

<http://macartney.com/systems/connectivity/subconn-0/circular-series>