Newport Panel Meter Calibration

USQ # Routine Maintenance

CHANGE HISTORY (≤ LAST 5 REV-MODS )

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
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<th>Summary of Changes</th>
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<tbody>
<tr>
<td>F-0</td>
<td>08/29/2016</td>
<td>Periodic Review</td>
<td>Changes per Periodic Review. ADD Section 4.1, Steps 5.1.1, 5.1.8-5.1.12, 5.2.1, 5.2.2, 5.2.3, 5.2.6, 5.2.8, 5.2.9, 5.3.25, 5.4.15, 5.5.3-5.5.7, STRUCK Steps 5.5.8-5.5.16. REWORD 4.2.1, 4.2.3, 5.1.7, 5.2.3, 5.2.5, 5.2.7, 5.5.2, Changed title to 5.1, rew ord NOTES prior to Steps 5.1.1 &amp; 5.2.1 to Special Instruction.</td>
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<tr>
<td>E-1</td>
<td>10/22/2014</td>
<td>CHAMPS Removal</td>
<td>CHAMPS removal, new records statement.</td>
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<tr>
<td>E-0</td>
<td>05/15/2013</td>
<td>Periodic Review.</td>
<td>Removed vague phrases and added clarification where applicable.</td>
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<tr>
<td>D-1</td>
<td>09/21/2013</td>
<td>Inconsequential Change to Lockout/Tagout program references</td>
<td>Pgs, 3, 5, 10: Changed references to read DOE-0336, Hanford Site Lockout/Tagout Procedure.</td>
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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for the calibration of the Newport panel meters (Infinity Process Meters).

1.2 Scope

This procedure applies to Newport Electronics Infinity Process Meters, Model INFP 0002.

2.0 INFORMATION

NONE

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 All Lockouts and Tagouts or Over-Tagging requirements shall be performed in accordance with DOE-0336, Hanford Site Lockout/Tagout Procedure.

3.1.2 Compliance with DOE-0359, Hanford Site Electrical Safety Program is required when working with this procedure.

3.2 Radiation and Contamination Control

Work in radiological areas will be performed using a Radiological Work Permit following review by Radiological Control per the ALARA work planning procedure TFC-ESHQ-RP_RWP-C-03.
4.0 PREREQUISITES

4.1 Special Tools, Equipment and Supplies

The following supplies may be needed to perform this procedure.
- Current Source
- Digital Multimeter (DMM)
- Lifted/Landed Lead Record (A-6001-159)
- Other tools, equipment and supplies as identified by Shift Manager/OE/FWS/User.

4.2 Field Preparation

4.2.1 ENSURE release from Operations Management prior to beginning performance of this procedure.

4.2.2 ENSURE Operations personnel have configure system or equipment to allow performance of this procedure.

4.2.3 IF the performance of this procedure is suspended for any reason, equipment must be left in a safe configuration per Shift Manager’s direction, with those directions being recorded in the Work Record or the Comments Section of the Data Sheet.

4.2.4 IF any equipment problem is observed during performance of this procedure; immediately NOTIFY Shift Manager.
5.0 PROCEDURE

5.1 Bench Test - Calibration Check

**Special Instructions**

This section performed only if panel meter will be moved to the Shop for testing.

5.1.1 **IF** Field Calibration is being performed, **GO TO** Section 5.2.

5.1.2 **IF** power to panel is on, **ENSURE** power to panel meter is de-energized per Work Package instructions.

5.1.3 **IF** a lock and tag is required during the performance of this procedure, **INSTALL** authorized worker lock and tag to work area per DOE-0336, Hanford Site Lockout/Tagout Procedure and/or work package instructions.

5.1.4 **REQUEST** survey of meter(s) for release.

5.1.5 **DISCONNECT** power AND

**TAPE** ends of lifted leads.

5.1.6 **RECORD** lifted leads on Lifted/Landed Lead Record.

5.1.7 **REMOVE AND TRANSPORT** meter to shop for bench calibration.

5.1.8 **CONNECT** M&TE/Current Source to signal input terminals (Figure 1).

5.1.9 **CONNECT** power to panel meter AND

**ENERGIZE** meter.

5.1.10 **RECORD** the following while applying input values per Data Sheet:

- Display reading on As Found Section of Data Sheet
- Alarm setting on As Found Section of Data Sheet
- Alarm channel light energizes per Data Sheet.

5.1.11 **IF** readings are within tolerance per Data Sheet, **RECORD** readings on As Left Section of Data Sheet.

5.1.11.1 **TRANSPORT** Meter back to field location **AND**

**RECONNECT** lifted leads per the Lifted/Landed Lead Record.
5.1 Bench Test - Calibration Check (Cont.)

5.1.11.2 REMOVE authorized worker lock and tag to work area per DOE-0336, Hanford Site Lockout/Tagout Procedure and/or work package instructions.

5.1.11.3 GO TO Restoration Section 5.5.

5.1.12 IF readings are not within tolerance per Data Sheet, GO TO Section 5.3 for Instrument Calibration AND/OR

GO TO Section 5.4 to Change Alarm Set-points.
5.2 Check Meter Calibration

Special Instructions

When programming, pressing RESET button (1) one time will back up (1) one menu.

Pressing RESET button (2) two times will return the meter to RUN mode.

The menu IN CNF INP.6, determines if raw data or scaled data is sent to the Display. Anytime this menu is activated data MUST be input. Data may not be reviewed.

5.2.1 IF power is ON to Panel Meter, DEENERGIZE Power.

5.2.2 LIFT AND TAPE signal input leads per Figure 1 AND RECORD on Lifted/Landed Lead Record.

5.2.3 CONNECT M&TE/Current Source to signal input terminals per (Figure 1).

5.2.4 APPLY power to panel meter.

5.2.5 RECORD the following while applying input values per Data Sheet:
   • Display reading on As Found section of Data Sheet
   • Alarm setting(s) on As Found section of Data Sheet
   • Alarm channel light energizes per Data Sheet.

5.2.6 IF readings are not within tolerance per Data Sheet, GO TO Section 5.3 for Instrument Calibration AND/OR GO TO Section 5.4 to change Alarm Set-points.

5.2.7 IF readings are within tolerance, RECORD readings on As Left section of Data Sheet.

5.2.8 REMOVE test equipment AND RECONNECT lifted leads per Lifted/Landed leads record.

5.2.9 GO TO Restoration Section 5.5.
5.3 Calibrate Meter

5.3.1 IF P2 connector is present, REMOVE P2 connector.

5.3.2 PRESS MENU button until L2 CNF is displayed.

5.3.3 PRESS MIN button until L2C.5=1 is displayed.

5.3.4 PRESS MAX button to change display to L2C.5=0.

5.3.5 PRESS MENU button to store change.

5.3.6 PRESS MENU button until IN.SC.OF is displayed.

5.3.7 PRESS MIN button until INPUT 1 is displayed.

5.3.8 PRESS MIN button until display shows a six digit number.

5.3.9 SCROLL through digits, using MIN button and MAX button to change number values per Data Sheet.

5.3.10 PRESS MENU button to save change AND OBSERVE READ 1 is displayed.

5.3.11 PRESS MIN button. (A six digit number will be displayed.)

5.3.12 SCROLL through digits, using MIN button and MAX button to change number values per Data Sheet.

5.3.13 PRESS MENU button to save change AND OBSERVE INPUT 2 is displayed.

5.3.14 PRESS MIN button. (A six digit number will be displayed.)

5.3.15 SCROLL through digits, using MIN button and MAX button to change number values per Data Sheet.
5.3 Calibrate Meter (Cont.)

5.3.16 PRESS MENU button to save change AND OBSERVE READ 2 is displayed.

5.3.17 PRESS MIN button to display a six digit number.

5.3.18 SCROLL through digits, using MI button and MAX button to change number values per Data Sheet.

5.3.19 PRESS MENU button to save changes.

5.3.20 PRESS MENU button until L2 CNF is displayed.

5.3.21 PRESS MIN button until L2C.5=0 is displayed.

5.3.22 PRESS MAX button to change display to L2C.5=1.

5.3.23 PRESS MENU button to store change AND OBSERVE L3 CNF is displayed.

5.3.24 PRESS RESET twice to return to RUN.

5.3.25 GO TO Section 5.2 AND PERFORM Steps 5.2.5 through 5.2.9 to obtain As Left data.
5.4 Change Alarm Setpoints (If Required)

5.4.1 PRESS MENU button until L1 CNF is displayed.

5.4.2 PRESS MIN button to go to appropriate setpoint lock parameter per Data Sheet and the following is displayed:

L1C.1= Setpoint 1
L1C.2= Setpoint 2
L1C.3= Setpoint 3
L1C.4= Setpoint 4

5.4.3 PRESS MAX button to change setpoint parameter to =0.

5.4.4 PRESS MENU button to store change.

5.4.5 PRESS RESET twice to return to RUN.

5.4.6 PRESS setpoint button to scroll to appropriate setpoint channel per Data Sheet.

5.4.7 SCROLL through digits, using MIN button and MAX button to change setting per Data Sheet.

5.4.8 PRESS setpoint button to store change.

5.4.9 PRESS setpoint button until meter returns to RUN.

5.4.10 PRESS MENU button until L1 CNF is displayed.

5.4.11 PRESS MIN button to go to appropriate setpoint lock parameter per Data Sheet.

5.4.12 PRESS MAX button to change setpoint parameter to =0.

5.4.13 PRESS MENU button to store change.

5.4.14 PRESS RESET button twice to return to RUN mode.

5.4.15 GO TO Section 5.2 AND

PERFORM Steps 5.2.5 through 5.2.9 to obtain As Left data.
5.5 Restoration

5.5.1 IF removed in Step 5.3.1, INSTALL P2 connector.

5.5.2 IF lock and tag was used for bench test, ENSURE authorized worker lock and tag has been removed per DOE-0336, Hanford Site Lockout/Tagout Procedure.

5.5.3 IF any problems were encountered with calibration, INFORM FWS.

5.5.4 IF not already removed; DISCONNECT AND REMOVE Test Equipment.

5.5.5 RECORD the Test Equipment information and calibration status on Data Sheet.

5.5.6 CHECK equipment restoration by observing indications are consistent with expected conditions.

5.5.7 NOTIFY Operations that testing is complete and system may be returned to desired configuration.

5.6 Records

The performance of this procedure generates no records. However, PM Data Sheets associated with the procedure, are records and are maintained in the work package as record material.

The record custodian identified in the Company-level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.
Figure 1 - Signal Input Connections

![Signal Input Connections Diagram]

- **Figure 1**: Current Input Without Sensor Excitation
- **Figure 2**: Current Input With Sensor Excitation
- **Figure 3**: Voltage Input Without Sensor Excitation
- **Figure 4**: Wire Voltage Input With Sensor Excitation
- **Figure 5**: 4-Wire Voltage Input With Sensor Excitation
- **Figure 6**: Potentiometer Connections With Internal Power Supply and Ratio Measurement
- **Figure 7**: Potentiometer Connections With External Power Supply and Ratio Measurement (Remove Jumper S2-T)