

TBWP Mode-Locked Oscillator STARTUP PROCEDURE

S-AB-P-027 REVISION B

Intent: This procedure should be used to start the Time Bandwidth Product short-pulse laser oscillator that is used in LS1 and LS2. The appropriate laser safety goggles must be worn for this class 4 (1053 nm) laser.

Diode Controller

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- | | | |
|----------|---|--------------------------|
| 1 | Turn the “ Power ” key on the laser diode supply to ON. | <input type="checkbox"/> |
| <hr/> | | |
| 2 | Wait for the internal self-check process to complete (~15 seconds). | <input type="checkbox"/> |
| <hr/> | | |
| 3 | Press the “ Start ” button to start lasing. | <input type="checkbox"/> |

Check the following settings:

- | | | |
|----------|---|--------------------------|
| 4 | LS1: The diode current shown on the digital display should start ramping up from 0.7 to 1.0 A. The ramping should stop when the diodes reach 1.0 A. If it does not or if the final steady state current is not 1.00 A turn the unit off and investigate the problem. | <input type="checkbox"/> |
|----------|---|--------------------------|

LS2: Note that the current for the diodes in this laser do not ramp up. The diodes turn on with the current preset to 1.0A and 0.9A respectively and stay the same.

Synchronizer – CLX1100

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- | | | |
|----------|--|--------------------------|
| 5 | Press “ Power ” button ON. | <input type="checkbox"/> |
| <hr/> | | |
| 6 | Wait for the internal self-check process to complete (~15 seconds). | <input type="checkbox"/> |
| <hr/> | | |
| 7 | Press the “ Piezo On/Off ” button to turn the synchronizer ON. | <input type="checkbox"/> |
| <hr/> | | |
| 8 | Check the CLX1100 screen and confirm that the piezo “locked” message is displayed. | <input type="checkbox"/> |
| <hr/> | | |
| 9 | Check if the “ Lock LED ” is lit. The noise readout on the display should read < 2 ps. If it is not, turn the unit off and investigate the problem. | <input type="checkbox"/> |

(continues)

Diagnostics

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- | | | |
|-----------|--|--------------------------|
| 11 | Turn on the Fieldmaster GS power meter. | <input type="checkbox"/> |
| <hr/> | | |
| 12 | Turn on the MiniAutocorrelator. | <input type="checkbox"/> |
| <hr/> | | |
| 13 | Move the scan range lever to (-) on the MiniAutocorrellator | <input type="checkbox"/> |
| <hr/> | | |
| 14 | Start SPO GUI on the Sun workstation to verify the diagnostics readings. | |
| <hr/> | | |
| 15 | Press the top button on the GYUI until the screen displays the FWHM function;
then press the ON button. | <input type="checkbox"/> |
| <hr/> | | |
| 16 | Check the diode current controller to ensure the current is set to 1.00 A, and is steady
before starting to measure the diagnostics. | <input type="checkbox"/> |
| <hr/> | | |
| 17 | Direct the beam to the Fieldmaster GS power meter using the “power” flipper button.
The power level should read between 150-180 mW. If it is not, stop and investigate the
problem. | <input type="checkbox"/> |
| <hr/> | | |
| 18 | Direct the beam to the MiniAutocorrelator using the “autocorrelator” flipper button.
The Autocorrelation reading should read between 260 and 320 fs. If it is not, stop and
investigate the problem. | <input type="checkbox"/> |
| <hr/> | | |
| 19 | Direct the beam into the Spectrometer using the “spectrum” flipper button.
The FWHM of the spectrum displayed on the computer readout should be between 7
and 10 nm. If it is not, stop and investigate the problem. | <input type="checkbox"/> |

Stretcher

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- | | | |
|-----------|--|--------------------------|
| 20 | Using an IR card, ensure that the flippers used above for the diagnostics are not
blocking the beam and the beam is free to propagate into the Stretcher. | <input type="checkbox"/> |
| <hr/> | | |
| 21 | Press “ON” the Stretcher position monitor | <input type="checkbox"/> |
| <hr/> | | |
| 22 | Verify that the position monitor readout is working on SPO. | <input type="checkbox"/> |

(End of procedure)

Document Release:

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