



**Customer Service Instruction**

# **Optimizing the mirror alignment for an M-Comb laser**

**10.02.2015**

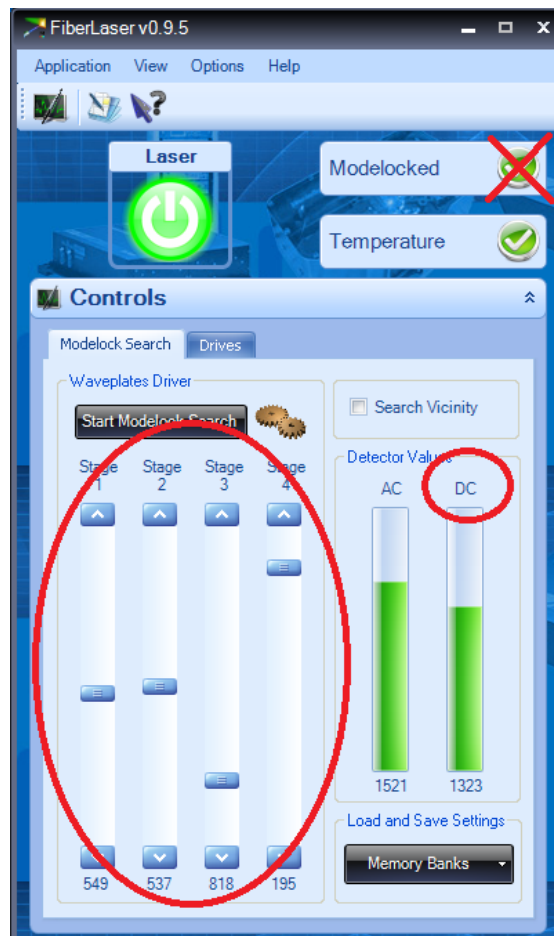
Author:  
Revision 1:

Clemens Kerzl  
VH

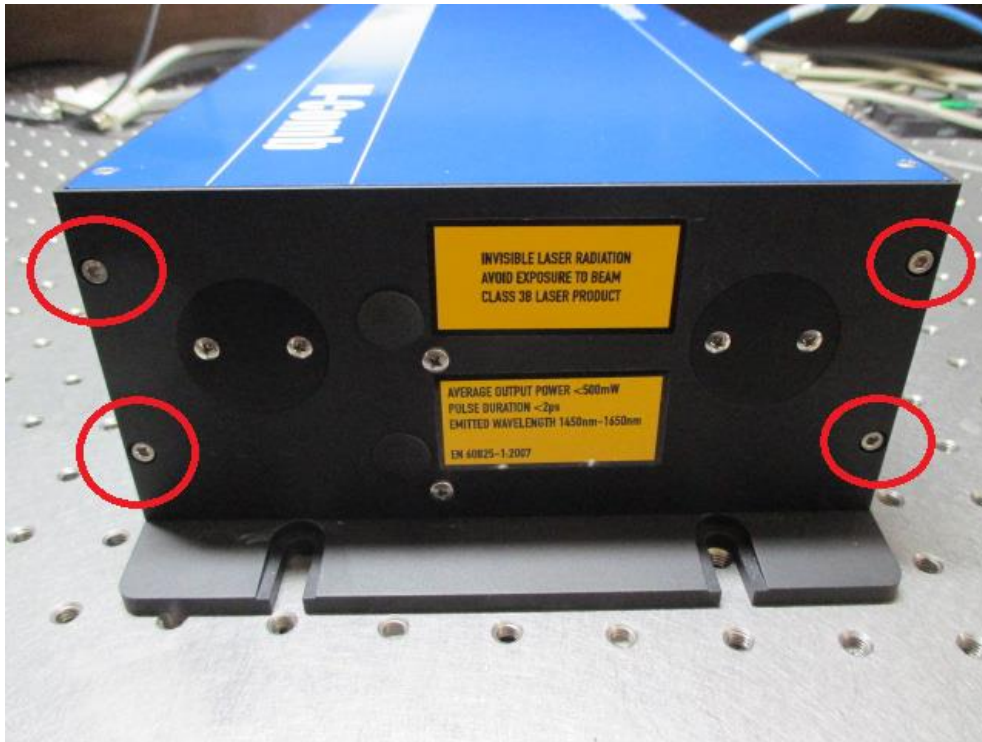


**Please read the following instruction carefully and wear appropriate protection glasses for your safety while operating the laser system! Don't open the laser system especially the oscillator without protection of your eyes! Only trained personal which is used to work with laser systems can do this alignment. We disclaim liability for consequences of doing this alignment.**

1) Before you do any adjustments write down the DC-values shown in the fiber laser software. They are a measure of the laser's fundamental power. If the DC values are lower than in the past, the mirror alignment might have drifted slightly. It also recommended connecting your monitor port to a power meter to have a second indicator of the fundamental power. For the realignment, make sure that the laser is **NOT** mode-locked during the whole alignment process (AC value is zero). Then, manually adjust the waveplate stages via the four sliders in the FiberLaser software to achieve a relatively high DC-value (see below picture).



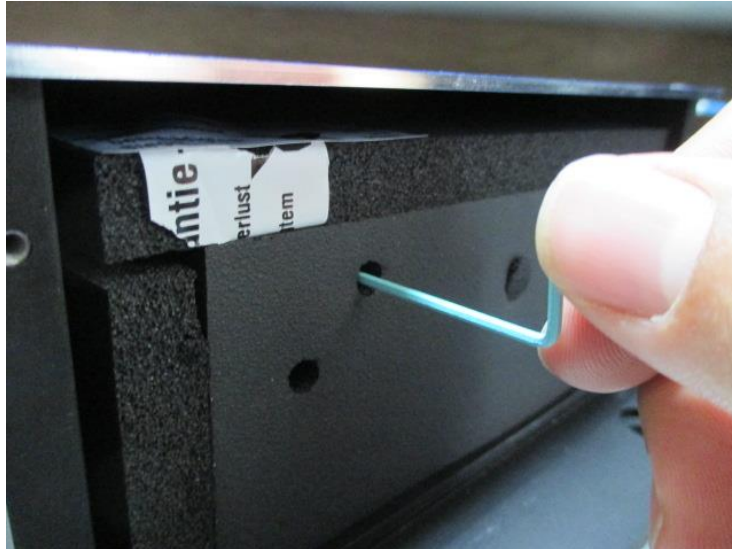
2) Remove the front panel of the laser by unscrewing the four red marked screws



3) You should then see the foam casing like in the picture below. There are two foam plugs which need to be removed (marked red in the below picture).



4) Now you have access to the mounting screws for the mirror mount inside the cavity. To adjust the mirror, use a metric 1, 5 mm hex-wrench and slide it carefully in one of the two holes (see below picture). The upper right hole pivots the mirror around the horizontal axis, the lower left hole around the vertical axis. There is some wiggling room when you slide the wrench in the hole.



The hole is around 5-7cm deep. Move the wrench carefully until you feel that it fits the mounting screw (Please see the picture below to get an idea how it looks inside).



Carefully try to optimize the mirror alignment. Only **very tiny** adjustments are probably required. The higher the measured monitor power (or DC value) the better. The main problem of this adjustment is that you don't have a real "reading" of the screw positions, so it is difficult to come back to the initial position. If you have reached the maximum DC value/optical output power - ideally close to the DC value reported in your test report, you can now try to find a mode lock state.

5) The system should now be ready for use.

6) Insert the foam plugs and close the front panel of the laser.

7) Done