

BDU-SM Series ps-Diode Lasers

On/Off modulation configuration

QUICK OPERATION GUIDE





Content

..... 1

Thank you... 3

Safety Information..... 3

Software Installation 3

 Run Installer..... 3

Operating the laser..... 3

 Power and PC connection 3

 Interlock / Modulation Input..... 4

 Synchronisation Output 4

 Software operation – Start the laser 4

Using the laser interlock..... 6

Troubleshooting 7

Thank you...

... for choosing a quality Becker&Hickl smart picosecond diode laser. Please read this guide carefully as it contains the necessary steps for installation and operation of the system.

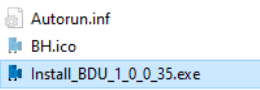
Safety Information

Your unit is a class 3B laser module. Please adhere to laser safety precautions at all times, this is your responsibility. Relevant safety precautions include but are not limited to: avoid looking into the laser beam, do not wear reflective jewellery while working on the beam path and ensure that the laser cannot move. Please check with your institute if a connection to the rooms laser interlock system is required.

Software Installation

The BDU control software can be found on the USB key included with your new BDU laser. It can also be downloaded at www.becker-hickl.com.

Run Installer

- Execute the installer contained in the installation package
 - 
- The default installation path is C:\Program Files (x86)\BH
- The **LabView runtime 2017 SP1** is required to operate the laser. It is installed together with the laser software. The runtime can be used to operate software written with LabView without having a LabView license. It can also be downloaded from www.ni.com.
- If selected during the installation process, the BDU software shortcut is now available. Otherwise the Link is found in the BH folder in the start menu.



Operating the laser

Power and PC connection

- Connect the laser. **Please use ONLY THE ORIGINAL USB CABLE** and ensure the plug is connected the correct way around (top side indicated by sticker).



Interlock / Modulation Input

- Ensure that the **ON/OFF input** of the laser is **grounded or shorted**. This can be done with the **included 50 Ohm termination**.
- This input can be used for external on/off modulation and/or connection of an interlock safety switch. For details see paragraph 'Using the laser interlock'.



Synchronisation Output

- The laser delivers a synchronisation (SYNC) output for TCSPC modules at the **TRG Out**. The pulse polarity is negative, the amplitude is about -1.2 V. The pulse duration is about 1ns. The SYNC output is inactive when the laser is in the 'OFF' state (Laser ON/OFF = L). When lasers are multiplexed their SYNC Out signals can be combined by a simple resistive power combiner.

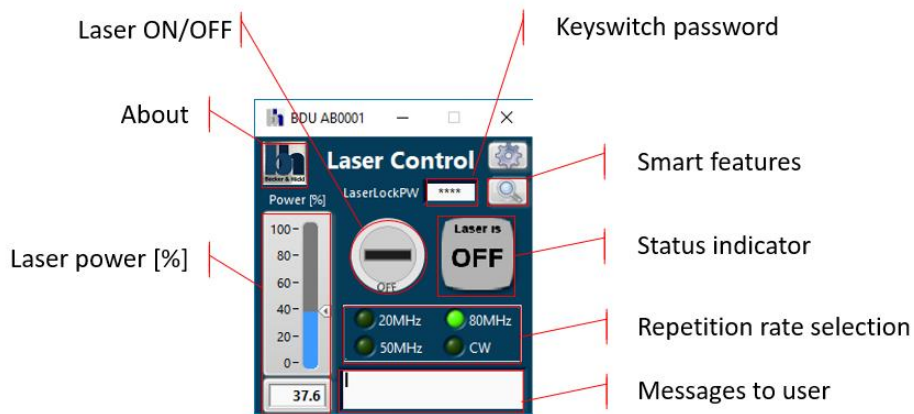


Software operation – Start the laser

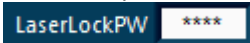
- Start the BDU application.



- Upon startup, the software panel looks like this



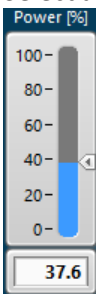
- Enter the password to enable the keyswitch. The default password is **1234**.



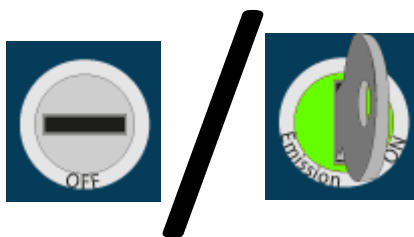
- Select a repetition rate by clicking the corresponding button.



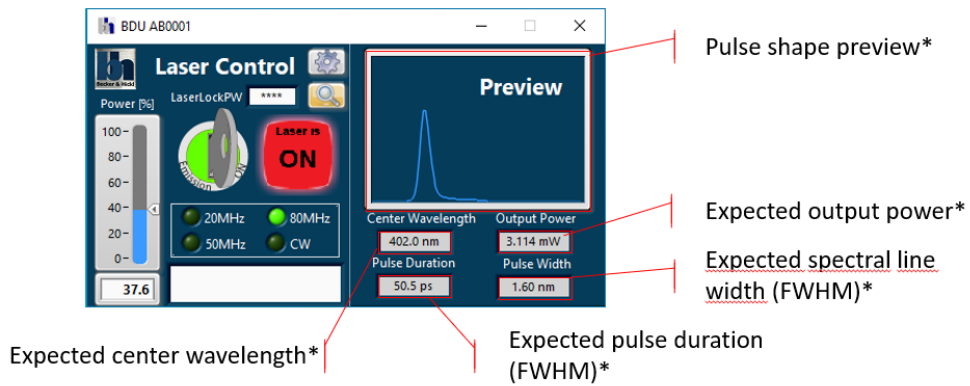
- Select a laser power either with the slider or by entering it into the text box beneath the slider.



- Start the laser with the virtual key switch. The laser will start emitting light.



- Activating the smart features of the laser  opens the output information panel

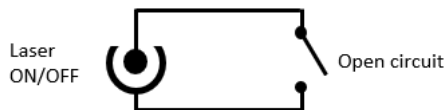


*Values represent the laser output measured directly after the laser at the time of shipping and serve as an indication of what may be expected. The optical path of the experiment will have influenced the laser pulse once it reaches the sample. Please always measure the systems instrument response function (IRF).

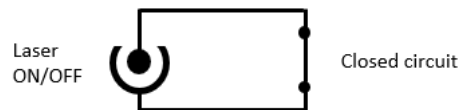
Using the laser interlock

The laser interlock is connected to the laser ON/OFF input on the laser head. An open circuit will suppress laser emission.

No emission:

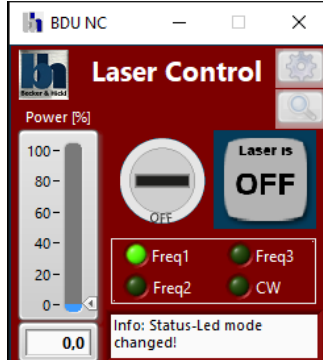


Emission:



Troubleshooting

- **My laser will not turn on**
 - a. If no laser is connected, the software panel will be red



Restart the application after connecting the laser. Ensure that the laser is connected with the original USB cable without any intermediate USB-hubs.

- b. If the ON/OFF connector is not shorted with a 50 Ohm resistance or the lab interlock system the laser will not emit light.
- **The laser is connected but the software does not recognize the laser.**
 - a. Please ensure that the USB connector is oriented such that the 'top side' sticker points towards the blue side of the laser. Please tighten the USB connector screws and ensure that both sides of the USB cable are inserted fully into the respective ports.



- **The software crashes when the laser is set to high output power.**
 - a. The current draw on the USB port is proportional to the laser power. If the laser turns off/crashes at high power settings the USB port it is connected to is not powerful enough. Please reduce the load on that USB port module in your computer or choose a different power.
- **I would like to use the laser interlock and external ON/OFF modulation at the same time.**
 - a. This is possible with a signal combination adaptor box. Please contact support at info@becker-hickl.de.