

# Checklist and instructions for Remote-Installation of DLC TA-SHG/FHG pro



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## 01 General information

Order Number:

Customer:

Institute / Company:

Serial number:

## 02 Checklist of Prerequisites for the Remote Installation

Please send back the filled-in list before the Remote-Installation date.

- Check of delivery, if parts missing enlist here \_\_\_\_\_
- Set-up of the laser-system (electrical, optical, chiller if needed) and connected to mains
- Computer with TeamViewer Quick-Support installed and Web-Cam available that shows the laser-system
- Test connection to internet, the TeamViewer Quick-Support should show an ID and password
- TeamViewer Pilot on cell phone installed and stable WIFI connection (ID shown in app)
- PC-GUI installed on a computer
- Computer connected via Ethernet to the DLC pro and connection established
- Successful booting up of DLC pro (switch at back-side)
- Service-report sent
- Power-meter appropriate for TA and SHG/FHG power-levels and wavelength. Optimally a semiconductor measurement-head and a thermopile measurement-head are available.  
Type and serial number of all power meter \_\_\_\_\_
- Prepare wavemeter + suitable optics for probe beam  
manufacturer and serial number of wavemeter \_\_\_\_\_
- Tools at hand
- All shutters closed
- Wavelength of interest: \_\_\_\_\_
- Coarse tuning of wavelength required, if so \_\_\_\_\_
- Minimum power level required \_\_\_\_\_
- Laser safety requirement fulfilled

## 03 Additional comments

## 04 Signature

Customer

\_\_\_\_\_

Date:

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## 05 Detailed instructions to prepare for the Remote-Installation

Please set-up the laser 2 days prior to the remote-installation-date so that the laser can acclimate to your laboratory. Have the DLC pro turned on but do not turn on the emission yet!

Please refer to the list below for detailed step-by-step instructions:

- You have received the DLC TA-SHG PRO in a wooden crate. Please use a sturdy screwdriver to open up the metal-clamps that secure the cover of the wooden chest. The package should contain the following items (please refer to Figure 9 of the DL-/TA-SHG/FHG pro manual for details on the supplied tools and cables).
  - DLC TA-SHG PRO laser head (please mind that this will be quite heavy, two people might be required for lifting)
  - DLC pro controller (the key-switch is in one of the plastic bags)
  - cables for connecting the SHG to the controller and the controller to the mains supply
  - Manuals and tools (USB drive, Allen keys, target...)
  - (optional) chiller with tubes and a power cord
  - (optional) additional components, please check delivery note
- Place the DLC TA-SHG PRO on the optical table, ideally already where the laser is going to be operated later. Changing the location later is easily possible, but minor adjustments might be necessary. Make sure that the laser apertures (main SHG output, probe beam output and TA output -- see manual section 6.16 Main Dimensions of the DL-/TA-FHG pro, Figure 52 DL-/TA-FHG pro standard version) are easily accessible so that a power-meter can be placed to measure the power.
- Fix the laser on the optical table with the four clamps supplied with the system.
- Position the DLC pro and make sure to place it in a way that connecting the laser-head to the DLC pro can easily be achieved (cable length 2 meters). Connect the cables between the DLC pro and the SHG as shown in section 4.3 Electrical Connections, Figure 13 of manual. Do not forget the interlock connector (which is located in a plastic back) and already insert the Ethernet-cable for connection to your local network.
- Make sure to firmly fixing all the cables with the corresponding screws.
- (Optional) Position the Chiller, connect the tubes between chiller and cooling-plate, and fill it with the coolant. Once the tubes are properly connected, power on the chiller (record temperature) and add further coolant if necessary.
- Turn on the DLC pro (at the backside), insert key in front.
- Prepare a computer and install TeamViewer Quick-Support (<https://get.teamviewer.com/topticaqs>) and Web-Cam to have an image available for the remote-session that shows a top-view of the laser-head. Check that the connection to the internet is working and the TeamViewer software is showing an ID and password.
- Install TeamViewer Pilot on your cell phone and make sure to have WiFi in your laboratory for easy communication
- Please install the PC-GUI on this computer (see the USB-flash-drive for the files).
- Connect the computer via Ethernet to the DLC pro and establish a connection (either via Network or directly with an Ethernet-cable between DLC pro and computer be aware that you need another connection to the internet in this case).
- Wait for one hour such that all temperatures are stabilized and generate a service-report (via PC-GUI: menu>device-configuration>tab: MISC: button: generated service-report). Please send this to [service@toptica.com](mailto:service@toptica.com) for review before remote-installation  
In case the DLC pro boots up with a "bad" tone indicating a severe error please double-check the cables and restart the DLC pro. If this does not solve the issue, you may of course immediately take a service report and send it to us.

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- Prepare appropriate power-meter for TA and SHG power levels and setting it up on the optical table. Optimally a semi-conductor measurement-head is available for optimization and training, and a thermopile measurement-head for measuring the power.
- Prepare a wave-meter and suitable optics, for coupling the probe beam into the fiber that connects to the wave-meter.
- Have all tools sent along at hand and in addition a 2 mm Allen wrench
- Make yourself familiar with section 5.2.4 Alignment of the SHG/FHG Cavity (Service Operation) and 5.3.1 DL-/TA-SHG pro without AutoAlign (Motorized Mirrors) of the manual

Once all this done, please let us know and send us the service report and checklist. We will check the service-report beforehand. During the Remote-Installation, we will walk you through the further steps from the first start of the emission to obtaining the specified SHG output power. Please make sure to follow all laser safety rules and use laser goggles, which cover both the fundamental wavelength and frequency-doubled (quadrupled) wavelength at all, times.