Pre-Installation Guide for GWU OPO system

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Table of Contents

We at Spectra-Physics intend to provide you with responsive support so that you can derive great satisfaction and value in using our systems for your applications. Contact Technical Support at **1-800-456-2552** or **service@spectra-physics.com**.

TO BE CLEARED UP WITH THE CUSTOMER

1) Is there enough **space** on the **stable** optical **table**?
   Needed for in line set up:
   ```
   Length of pump laser
   + 35 cm space
   + length of the OPO
   + optional: length of the optional UVScan (42 cm)
   + place for the beam steering optics of the customer
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   More compact: If the customer wants to you to build up the OPO side by side to the pump laser with the beam folded around, then you need beam steering optics with holders and beam tubing (laser safety) for the pump beam.
   The width should be calculated as pump laser width + 40 cm.

2) In case of the **option M**: Is the customers **PC** suitable?
   a) PC running with Windows XP or Windows 7 (64 bit preferred).
      Possible as well, but not supported and not recommended is Windows 2000 and Vista.

   b) Administrator rights on the PC.

   c) 1 serial RS 232 port, possible COM port numbers: COM1 to COM9.

   d) Only in case of a PremiScan/MB or a PremiScan-ULD: A 2nd RS 232 port.
      (There are no restrictions to the COM port number for this 2nd COM port.)

   e) In case of the LambdaScan-USB: A high quality high speed USB 2.0 port

   f) To enable the customer to use the RS232 remote control: A further RS 232 port (named COM3 or COM4 or COM5)

   The latest software Version ScanMaster V3.42 (released Oct.04, 2012) supports usb to RS232 converters. Since USB to RS232 converters supplied by GWU with any option M usb ports can be used instead of real RS 232 ports.
   (After the installation of the USB to RS232 converter possibly the COM port number is needed to be changed (manually in the device manager) in order to fulfil the above mentioned restrictions on the COM port numbers.)

3) Does the customer's lab provides suitable wavelength measurement or do you need to bring the **LambdaScan** wavemeter?
   For any BasiScan or /BB type OPO the needed wavelength accuracy is 0.5 nm (preferably 0.2 nm). Most small PC based spectrometers are suitable for this.
   But for any /MB or –ULD type OPOs (and especially if they are combined with an UVScan!)

the needed wavelength accuracy is 1 cm^{-1} corresponding to 0.02 nm at 500 nm. This is typically fulfilled only by a wavemeter (like the GWU LambdaScan) or a bigger monochromator.

4) We recommend to talk to the customer about the OPO **beam properties**, i.e. the **elliptical** beam divergence of the /**MB** OPOs. The customer should not have wrong expectations...

5) Pump laser issues: Power supply, cooling water, distilled water, N2 purge gas,...

TO BE CLEARED UP INTERNALLY

6) **LBP** present or part of the OPO shipment? Or already build in Quanta Ray laser? (The LBP = "laser back reflection protection" is not needed in case of a BasiScan, BasiScan-M, VersaScan/BB and VersaScan-L 532/BB.
It is needed for all /HE (/BB/HE), /MB and -ULD models.)

7) **Beam height**: Fit to the OPO?
In case of an **INDI**: The "Beam riser pucks for INDI" are needed to lift up the INDI, except for the model VersaScan-L 532. The "Beam riser pucks for INDI" are usually part of the OPO shipment.

   In case of a **LAB** or **PRO** laser: Foot elongations for the OPO (and a 2nd set in case of an UVScan) are needed. Part No. is **EFT-LAB**/**PRO** for all scan series OPOs except for the VersaScan-L 532, where part.no. **EFT-LAB**/**PRO-L** has to be used for the VersaScan-L and a 2nd set in case of the optional UVScan.
   Exemption: No foot elongations are needed if the OPO and UVScan is build inside the **FlexiScan** housing.

8) **Pump polarization: Horizontal**!
If the pump laser is equipped with beam lock, then it is not possible to set the pump laser to horizontal polarization. A λ/2 waveplate (or polarization rotator) for the pump wavelength (355 nm or 532 nm) is then needed between the pump laser and the OPO.

9) In case of the option **FlexiScan (UV-L+)** (= sum frequency mixture of OPO and 1064 nm) the HG of the pump laser needs to be equipped with a **Type I SHG** crystal (to maintain horizontal 1064 nm polarization)

10) Does the **pump** laser **output power** match with the OPO (i.e. not too high?)

11) Suitable **OPO telescope lenses** present? If you do not have the full set of telescope lenses: Is it possible to mail to GWU the real burn pattern of the laser and tell the measured max. laser output at 355 nm (or at 532 nm in case of a VersaScan-L 532), measured with horizontal polarisation and preferably the LBP build in. Then GWU can supply suitable lenses.

PRE-INSTALLATION CHECKLIST

Physical Location:

- ❑ A location with adequate clearance around system to conduct service and accessible by Spectra-Physics personnel.
- ❑ A temperature controlled room.
- ❑ Utility services have been installed.
- ❑ Local building and safety codes are in compliance and have been verified.

When Your System Arrives:

- ❑ Check crates for damage.
  (If damaged, file a claim with the carrier and notify Spectra-Physics.)
- ❑ Uncrate and place the system on your work surface.
  (Two or more people may be required to lift some equipment.)
- ❑ Compare the packing list with your quotation. Call your Spectra-Physics office about any discrepancies.
- ❑ Check that all manuals were received.
- ❑ Save all packing and shipping material until the installation has been completed.
- ❑ Obtain the correct safety glasses and a power meter.