

PL220

Automatic Slide Oiler
Manual Version 2.2



Worldwide distribution

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FM 61600

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Thank you very much for purchasing this product from Prior Scientific. We are confident it will prove to be a reliable, precise and valuable addition to your microscopy system. Please do take the time to read these instructions before attempting to install and use this product. This manual contains both important safety information and instructions on how to successfully utilise the oil dispenser. Only use this product as specified in these instructions, or having first talked to Prior Scientific.

IMPORTANT SAFETY INFORMATION

SECTION I

Always observe the following safety precautions

This symbol, used on the pump and in this manual, means: Caution, refer to accompanying documents

Use only as specified by these operating instructions or the intrinsic protection provided by the unit may be impaired.

Before using the stage system, please follow and adhere to all warnings, safety and operating instructions located on the product and in this User Manual.

DO NOT expose the product to water or moisture while energised.

DO NOT expose the product to extreme hot or cold temperatures.

DANGER – Never alter the AC cord or plug. The power cord set must be an appropriately rated and approved cord set in accordance in the regulations of the country it is used in. If the supplied plug adapter is not the correct fitting for your geographic area or if you are unsure about the relevant regulations, please contact your supplier for advice

Only use the supplied AC/DC adapter with this product. **Never substitute another adapter.** Should the adapter be in any way faulty or damaged **contact your supplier.**

DO NOT expose the product to open flames.

DO NOT allow objects to fall on or liquids to spill on the product.

Make sure the electrical cord is located so that it will not be subject to damage.

Make sure the system is installed so that the front panel power switch is easily accessible.

Do not position equipment so that it is difficult to disconnect from power supply.

To reduce the risk of damage, unplug the product from the power source before connecting the components together.

This equipment contains no user-serviceable parts. Refer all repairs to qualified service personnel.

DO NOT run the pump dry for excessive periods. Roller and tubing temperatures can exceed normal operating range.

DO NOT run pump against a dead-end condition (closed discharge). This can lead to excessive roller and tubing temperatures and pressures

Rating: The pump is rated as Group II, Category 2 equipment, with a T4 temperature classification, for use in gas based environments.

Save this manual as it contains important safety information and operating instructions

SAFETY SYMBOLS

This symbol used on the pump means - **Caution refer to accompanying documents.**



This symbol used on the pump means. **DO NOT** allow fingers to contact moving parts.



UNPACKING YOUR PRODUCT

SECTION 2

- Carefully unpack the unit and retain packaging to return equipment for servicing.
- If the equipment appears damaged in any way, return it to sales outlet in its original packaging. No responsibility for damage arising from the use of non-approved packaging will be accepted.
- Ensure all items and accessories specified are present. If not, contact your sales outlet or us at the address at the back of the manual.

- Mains adaptor & PSU

- PL220 Control Box

- Oil Reservoir Bottle

- Tubing (1m x 1.6mm bore x 1.6mm wall)

- USB Cable

- RS232 comms cable

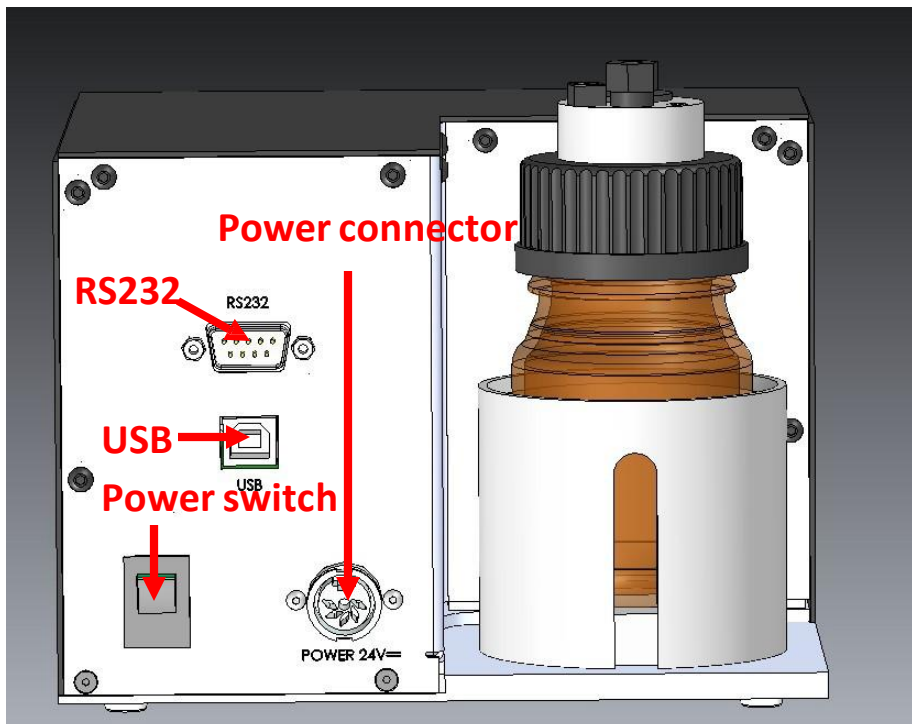
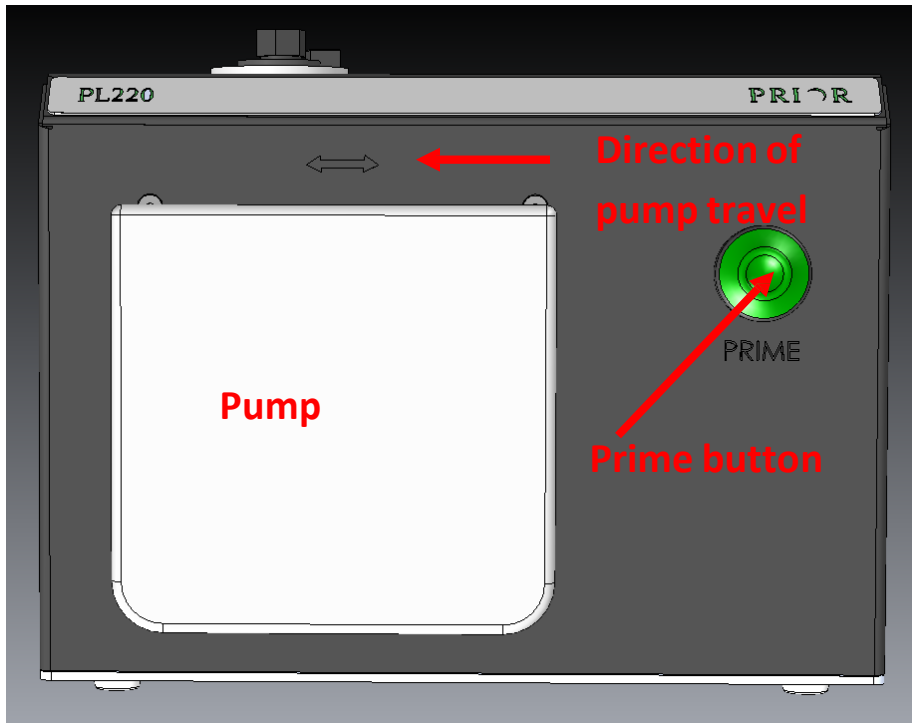
- Oil Dispenser Assembly

INSTALLATION

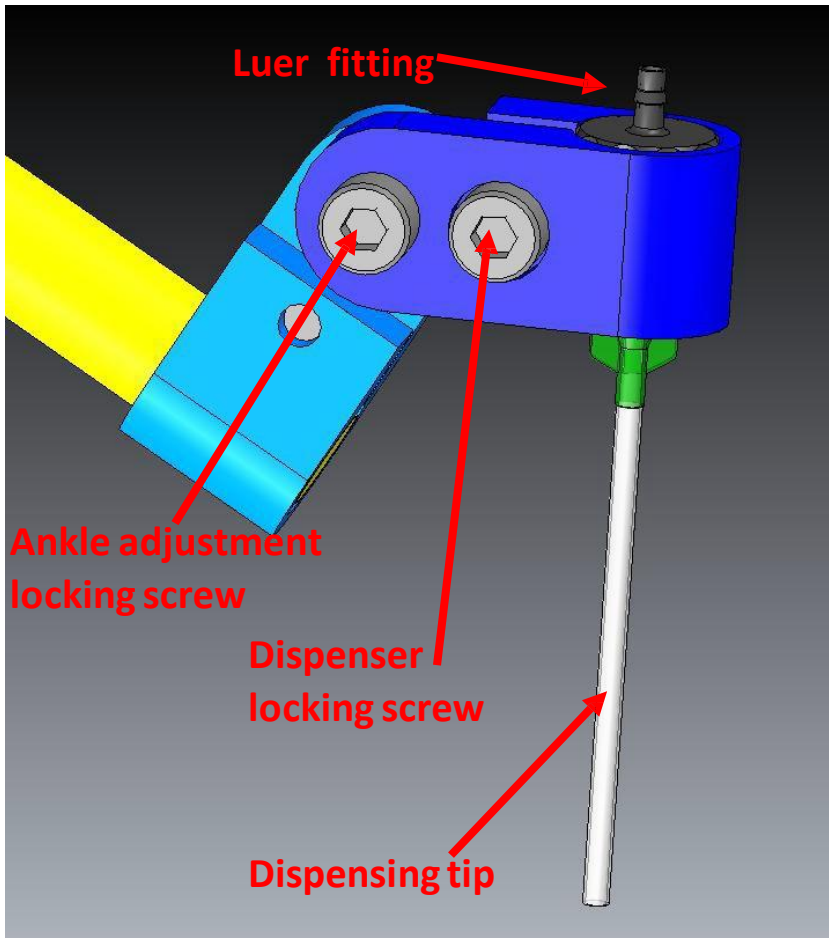
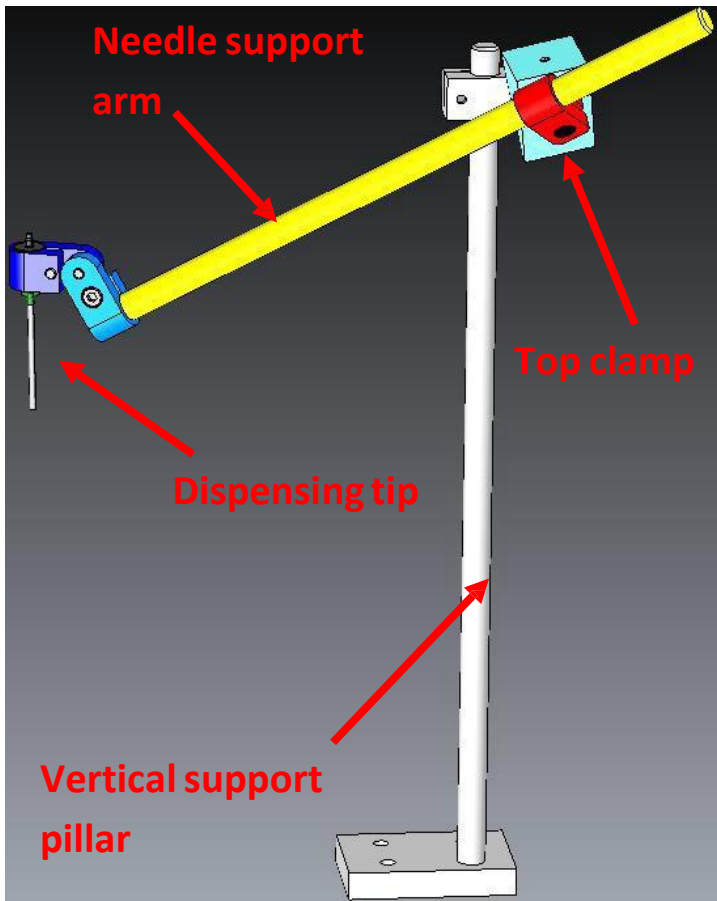
SECTION 3

3.1 Identifying the parts of PL220 Controller.

Front



3.2 Identifying the parts of Dispensing Tip Assembly.



3.3 Set up of PL220

Place the bottle into the location as shown below.



Fill the bottle with an appropriate amount of immersion oil. Only use recommended microscope immersion oil. (eg. Cargille Microscope Immersion Oil - Type A)

Place the open end of the tubing into the bottle and ensure it is situated close to the bottom of the bottle and immersed in the oil.

Insert Dispensing Tip into holder and tighten locking screw .

Inset other end of tubing into the Leur type fitting of the dispensing tip, if not already fitted.

Plug the power cable into the power supply and connect the power supply to the appropriate connector on the back of the PL22.

NOTE – It is important to minimise the distance between the pump and the dropper.

Place the tubing in the pump as shown below.



Clamp the tubing in the pump as shown.



Switch the power to the unit on with the switch at the rear of the unit.

Place a receptacle under the dispensing tip, to catch any drops of oil, then press and hold the “PRIME” button.

Oil will be pumped from the bottle to the dispensing tip, wait until the tubing is completely full of oil before releasing the “PRIME” button

Unclamp the tubing from the pump and check that there are no air bubbles within the tubing inside the pump. If bubbles are present continue to PRIME the pump until they disappear. Finally reclamp the tubing.

Make sure the tubing is securely fitted and no oil has leaked. If you see traces of oil try to reseat the tubing.

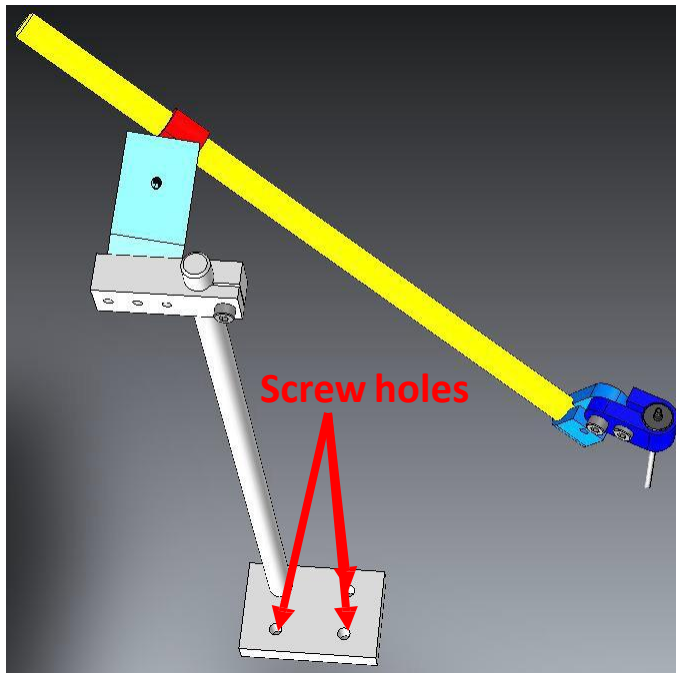
The system is now ready to pump oil.

3.4 Positioning of the Oil Dispenser

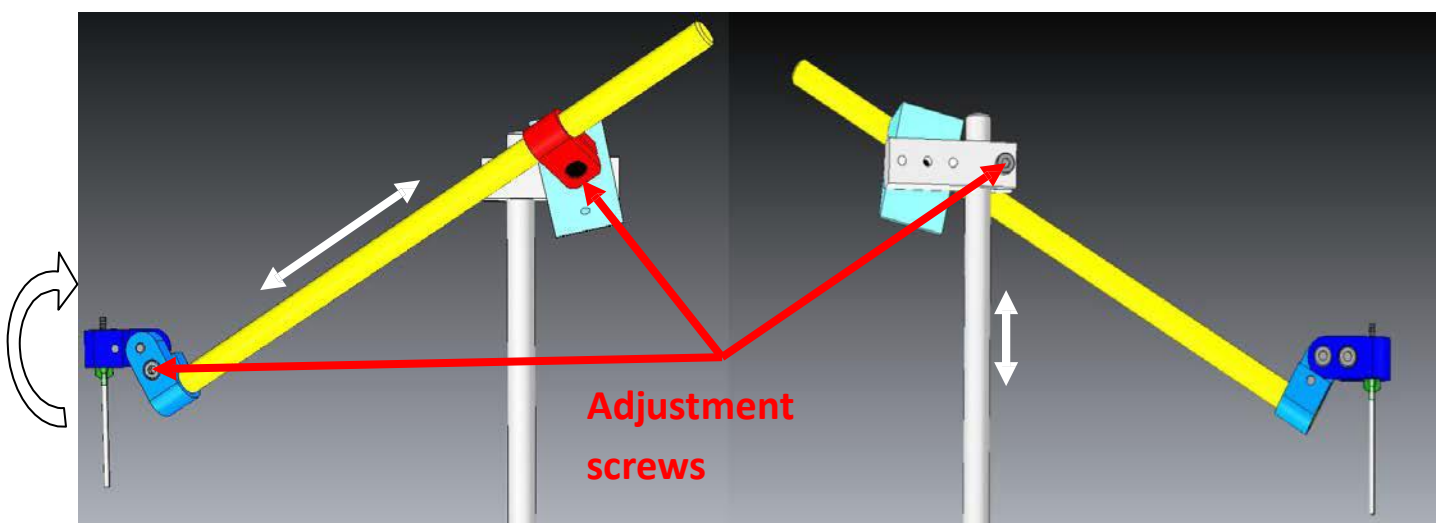
It is important to position the Oil Dispensing assembly in a location that allows for the dispensing tips to be positioned over the slide at the load position of the stage.

Make sure stage is in loading position, and a slide is correctly mounted onto the stage. Position the Oil Dispensing assembly close to the stage. **IMPORTANT – MAKE SURE IT DOES NOT OBSTRUCT STAGE MOVEMENT**

Fasten down the Oil Dispenser assembly using the 3 screws provided. See below.



The Dispensing tip should be positioned over the slide. To adjust position loosen the appropriate locking screws, and move tip into desired position. See for directions of movement.



Position the Dispensing Tip over the slide approximately 15mm above the microscope slide. Make sure it sits centrally above the microscope slide to avoid oil dripping over the edge of the sides.

Once position of Dispensing Tip is achieved tighten all Locking screws. The Oil Dispenser is now ready to use.



3.5 Installation of COM Port

The RSR232 port is ready to use, with standard PRIOR settings:

To install the USB port download the appropriate driver from the software download section of the website. PL220 is identified on the download page.

http://www.prioruk.com/downloadcentre/dc_software.html

The software should automatically install.

Plug in the USB cable to the PL220 and computer, power on the PL220.

The COM PORT should automatically be installed and the PL220 should be controllable via the computer.

SOFTWARE COMMANDS

SECTION 4

The Oiler accepts simple ASCII commands and is not supported by the Prior DLL.

Command	Arguments	Response	Description
?	None	Text string	<p>Reports information about the peripherals currently connected to the controller. The final line of information is always a line saying END. This allows for the addition of extra fields of information without effecting application software. Users should always read lines in until the END is seen.</p> <p>A typical response is shown below;</p> <pre>OPTISCAN INFORMATION DRIVE CHIPS 00000 JOYSTICK IS DIGIPOT ONLY STAGE = NONE FOCUS = NONEL FILTER_1 = NONE FILTER_2 = NONE SHUTTERS = 000 OILER = NORMAL END</pre>
\$		A	<p>Reports status as a decimal number and gives motion status of the PL220 oiler.</p> <p>A = 0 not moving A = 8 moving.</p>
DROP	None	a, b, c	<p>Reports setup parameters of DROP command:</p> <p>a = number of microsteps forward b = number of microsteps backwards c = number of microsteps per second when pumping with the PRIME button pushed.</p> <p>A full revolution of the motor is 50,000 microsteps, it is advised to do at least 1 revolution per dispense.</p>

DROP	a,b,c	0	<p>Set all of the values of the oiler.</p> <p>a = number of microsteps forward</p> <p>b = number of microsteps backwards</p> <p>c = number of microsteps per second when pumping with the PRIME button pushed</p>
DROP	a	0	<p>Delivers a specified "a" number of DROPS. Each DROP entails a forward and backwards motion of the pump. (The back movement is to stop oil dripping from the dispensing tip).</p>

REPLACEMENT PARTS

SECTION 5

<u>Part No.</u>	<u>Description.</u>
H407	24v Desk top power supply
W4013	Flexible Dispensing Tip
W4014	Luer Fitting Screw
W4040	Tubing (1 m x 1.6 bore x 1.6 wall)

MAINTENANCE, TROUBLESHOOTING, RETURNS AND REPAIRS

SECTION 6

Clean only with a damp cloth. Do not wet or allow moisture to penetrate the unit. Do not use solvents.

If aggressive liquids are spilled onto the pumphead, the head should be removed and cleaned with a mild detergent. Remove any tubing from the pumphead.

The same cleaning procedure should be used to limit the build-up of dust (which can become electrostatically charged and/or heated by friction)/

The moving parts of the rotor should be checked from time to time for freedom of movement. Pivot points and rollers should be lubricated occasionally with Teflon lubricating oil.

The rotor shaft runs on sealed bearings which do not require lubrication

The unit is designed to comply with EN 61010-1. The mains adaptor can be flash tested. It is fitted with radio frequency interference suppressors. Therefore it is recommended that only a D.C. test be performed. The remainder of the kit contains only low voltage DC circuits and should not be flash tested. Ensure that the mains adaptor is disconnected from the encoder before testing.

If there is erratic, or no, flow of oil from the unit, ensure that the tubing is not blocked, that there are no bubbles in the oil, that the tubing is not sharply bent or kinked, that the tubing is inside the reservoir, and that there are no leaks either from the unit or from the tubing.

This product contains no user serviceable parts – disassembling this product will void the warranty and possibly damage the oiler. It should only be repaired by an authorised person. If you are returning it to Prior Scientific for repairs, ensure that you contact Prior Scientific PRIOR to returning the product in order to both obtain the best advice and to get an RMA number which is needed for tracking repairs.

If you are in North America (USA or Canada) return the product to Prior Scientific Inc (USA); otherwise return to Prior Scientific Ltd (UK).

TECHNICAL SPECIFICATIONS

SECTION 7

This equipment is for indoor use and is designed to be safe within an ambient temperature range 5 to 40°C with maximum relative humidity of 80%; relative humidity derated linearly to 50%rh above 31°C

- Dry weight 6.1Kg
- Dimensions (Not including tip support bracket) : 174mm (W) x 130mm (H) x 250mm (D).
- Supply voltage 100v to 240v, 50Hz to 60Hz

DECLARATION OF CONFORMITY

SECTION 8

Declaration of Conformity

Prior Scientific Instruments Limited declares that the following product:

PL220 Automated Oiler

Conforms to the following Directives and Standards

Machinery Directive 2006/42/EC

EN809:1998 + A1:2009

EN 61010-1:2010

Based upon test report no: PD-00159-02

EMC Directive 2004/108/EC

EN61326-1:2006 Class B

Based upon test report no: EMJ825 issue 3

All specifications in this manual are subject to change without notice.

Please feel free to contact us regarding any questions, comments or suggestions.

Prior Scientific manufactures a wide range of products designed for a huge range of microscopy applications, from automated systems to illuminators, sample holders, filter wheels, and robotic slide loaders. Contact us or visit www.prior.com to find out more.