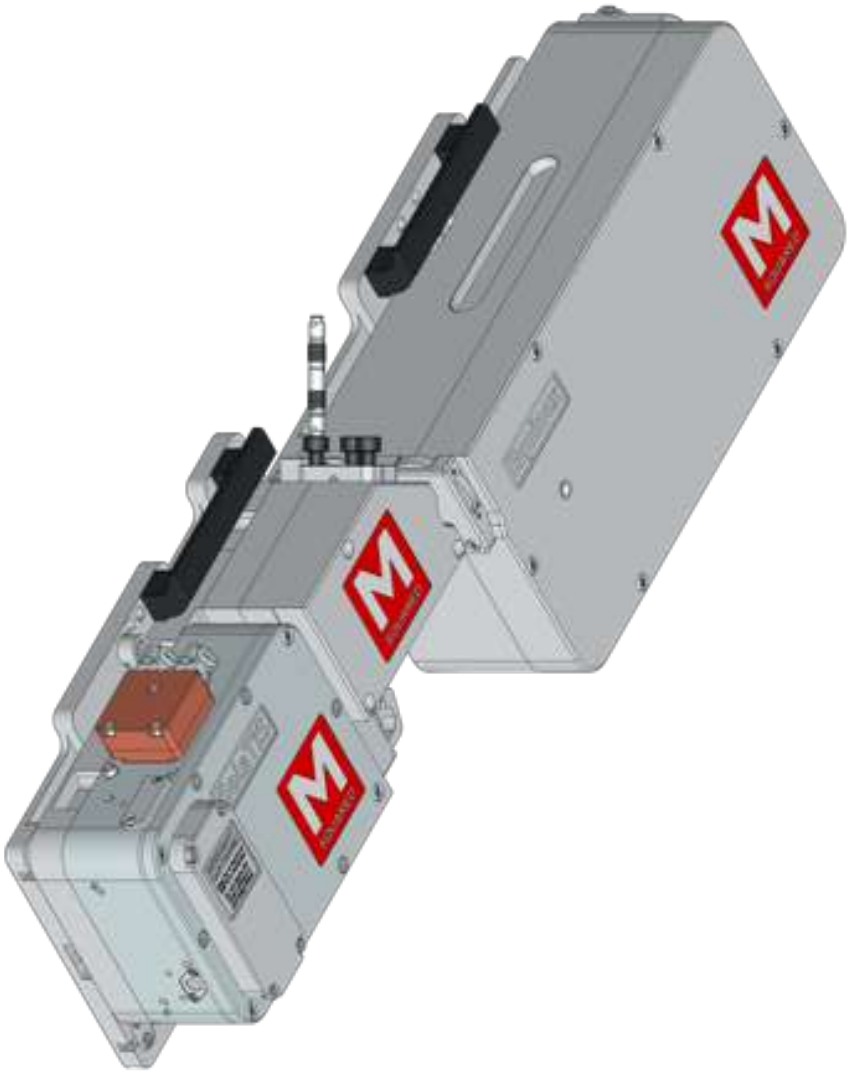


Installation Guide: Equinox + SolsTiS

V1.5

Installation Guide: Equinox + SolsTiS

Step 1 Place box in location with access to all sides ready for unpacking.

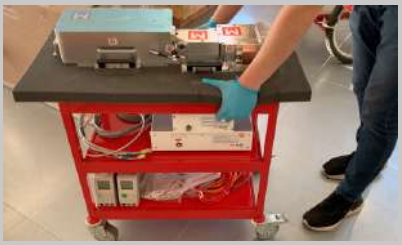
Step 2 Open box lid and remove foam corners securing inner box.

Step 3 Open inner box. Top layer contains SolsTiS ICEBLOC and accessories.

Step 4 Middle layer contains laser system on baseplate.

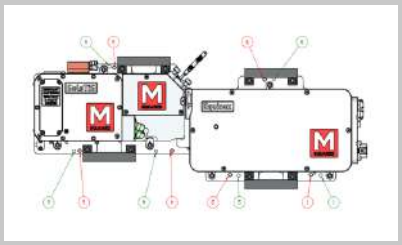
Step 5 Two people carefully lift laser system by handles affixed to baseplate.

Step 6 Ensure laser system is protected from shocks in transit to optical table.



Step 7 Carefully position laser system close to final location.

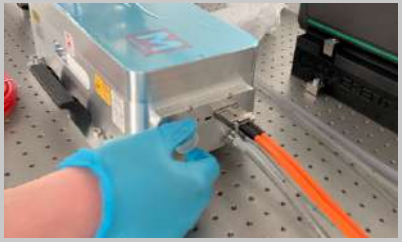
Step 8 Screw baseplate to metric or imperial table with 6x M6x20 (red) or 6x 1/4"x3/4" (green) screws + washers.



Step 9 Obtain Equinox ICEBLOC and cables from bottom layer of box. Insert orange Samtec cable to connector at rear of Equinox ICEBLOC.

Step 10 Insert other end of orange Samtec cable to rear of Equinox laser.

Step 11 Remove electrical shorting plug from power connector on rear of Equinox. The shorting plug must be retained.



Step 12 Connect the grey harness and grounding cable to Equinox ICEBLOC.

Step 13 Connect the other end of the grey harness to the rear of Equinox laser. Retain both plastic shorting caps.

Step 14 Locate laptop, ethernet cable, interlock bypass and ICE-BLOC key.

Step 15 Insert key into key switch on front of Equinox ICEBLOC. Keep key in OFF position (0).

Step 16 Insert Equinox interlock by-pass or lab interlock.

Step 17 Connect short ethernet cable between Equinox and SolsTiS ICEBLOCs. The two ethernet ports on each ICEBLOC are equivilent.

Step 18 Connect other ethernet cable between the second ethernet port on the Equinox ICEBLOC and laptop.

Step 19 Unbox chiller and connect hose pipe 1 (4m) with large connector to 'OUT' port on rear of chiller.

Step 20 Connect hose pipe 1 (4m) with small connector to 'IN' port on Equinox.

Step 21 Connect hose pipe 2 (<1m) with small connector to 'OUT' port on Equinox.

Step 22 Connect hose pipe 2 with large connector to SolsTiS cooling block.

Step 23 Connect hose pipe 3 (4m) with large connector to SolsTiS cooling block.

Step 24 Connect hose pipe 3 with large connector to 'IN' port on chiller.

Step 25 Fill coolant into chiller ensuring not to exceed max level.

Step 26 Turn on chiller. Ensure set value (SV) temperature matches temperature requirement indicated on Equinox head.

Step 27 Top up chiller reservoir as required, ensuring not to exceed 'max' level and replace cap.

Step 28 Connect red, blue and green connections on SolsTiS harness to SolsTiS.

Step 29 Attach SolsTiS connection guard to prevent accidental removal.

Step 30 Connect LEMO connection to APAM on SolsTiS PIK.

Step 31 Connect yellow/green earthing connection to the SolsTiS laser.

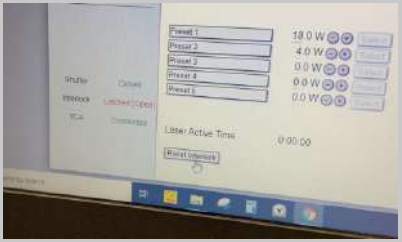
Step 32 If your system is fitted with a reference cavity, connect the three connections to the cavity as shown.

Step 33 Ensure mains connections to rear of Equinox and SolsTiS ICE-BLOCs are connected and switch is ON (I)

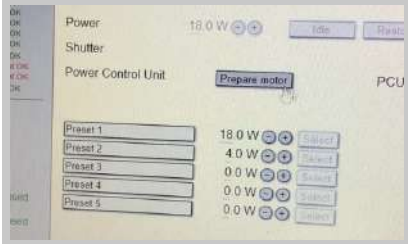
Step 34 Locate SolsTiS ICEBLOC key, insert into switch on front panel, and turn keys on front of Equinox and SolsTiS ICEBLOC to ON position (I).

Step 35 Turn on laptop and navigate to 192.168.1.225 for Equinox web interface.

Step 36 Press ‘Reset Interlock’.



Step 37 Press 'Prepare motor'. The operator will hear high-frequency tone from motor inside Equinox referencing.



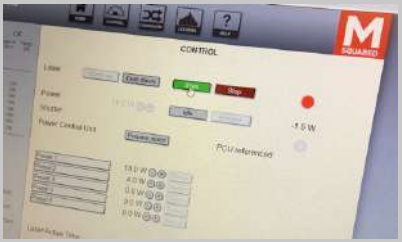
Step 38 Press 'Warm up' to warm the crystal and LBO oven to operating temperature.

Step 39 Wait for warm up process to complete (40min). A countdown message will appear at bottom of Equinox webpage.

Step 40 Remove tape from Equinox shutter. Ensure notch remains at closed position (red dot).

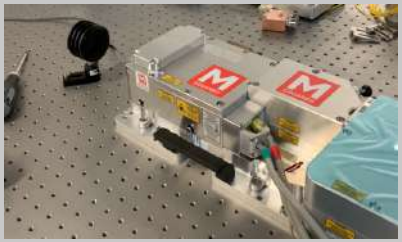
Step 41 Remove tape and protector from SolsTiS output port.

Step 42 Once Equinox warm-up process is complete, press 'Start' to start the Equinox diodes.



Step 43 After 90s the status indicator will change from amber to green. If this does not occur please contact M Squared.

Step 44 Place power meter at height of 7.8cm and 10cm from SolsTiS output.



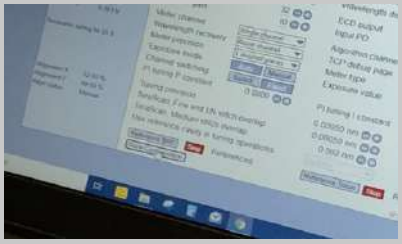
Step 45 Ensure adequate laser safety measures are in place (safety glasses). Open Equinox shutter by moving notch from red to green position.

Step 46 Press 'Select' next to 4.0W from preset options on Equinox control page. Alternatively type 4.0W into power control.

Step 47 Navigate to SolsTiS web interface on a new tab at 192.168.1.222.

Step 48 On configure menu, click 'supervisor options' and press 'Reference BRF' then press 'Reference Tuner'.

Step 49 Press 'Save Configuration'.



Step 50 On SolsTiS 'Control' interface type '780' into 'Target (nm)' and press enter.

Step 51 On SolsTiS 'Control' interface open beam alignment 'Settings' popup.

Step 52 Centre the beam alignment in X and Y to 50% .

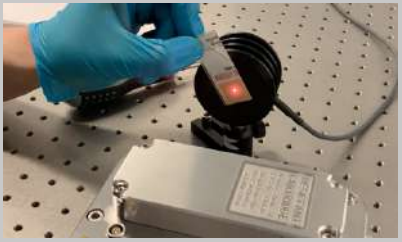
Step 53 Place an IR card at the output of SolsTiS to monitor the state of light. The output beam height should be 7.8cm.

Step 54 There should now be green spots at the SolsTiS output. If not present, "Idle" the Equinox and consult a M Squared engineer before continuing.

Step 55 Whilst monitoring the IR card make very small adjustments (up to 1/2 turn) to the X and Y controls of the PIK to attempt to initiate lasing.

Step 56 If lasing is not yet found, center the output beam though the aperture with the X and Y PIK controls. Raster scan the X and Y until lasing is found.

Step 57 Adjust the X and Y controls on the PIK to maximize the laser power as measured on the power meter.



Step 58 Once SolsTiS is lasing, navigate to Equinox control page and set to maximum configured operating power.

Step 59 On SolsTiS control page open SolsTiS beam alignment 'Settings' and press 'Reference' to optimise input beam.

Step 60 Monitor the indicator pane on SolsTiS control page to observe that when optimised the 'Output PD' indicator is 1V.

Step 61 The installation is complete and the wavelength can now be controled via SolsTiS interface. Please refer to manuals for system operation.