



DT 30/40 Pro Scanner user manual

Thank you for purchasing DT scanners from Stanwax Laser.

What you get

1x Scanner block with X & Y scanners fitted
1x Power supply +/- 24VDC (with cable fitted)
2x Scanner amplifier (matched to individual scanner)
2x Scanner signal input cable
2x Scanner motor connector cable
2x spare fuse

Introduction

Your scanners have been made to a high standard using quality components and precision manufacturing techniques. They come with an outstanding 2-year warranty and should provide years of reliable and trouble free precision scanning. To take care of your scanners you will need to follow a few simple rules.

- Keep the mirrors clean – dirt build up on scanner mirrors can be burned on by laser light, this becomes an increasing problem and the output of your laser will be affected.
- Don't run the scanners too hard – Your scanners will be tuned to output the Iridium test pattern at a given angle (this is normally 8 degrees). Using the scanners at high speed with very wide scan angles will cause excessive wear on the scanners.
- Keep the scanners and amplifiers cool – The scan block should be mounted to a solid metal base for mechanical stability and thermal conductivity. If needed heat sink compound can be used between the block and the surface it's mounted on.
- The scanner amplifiers should be mounted to a solid base and this can be done using the provided heat sink as a mounting bracket.
- Use the cables supplied. – The scanner signal input leads and power supply leads provided can be replaced or extended if desired however the leads between the amplifier and the scanner must not be modified, these are made to provide the best signal to the scanner motor and feedback signal to the amplifier. Modifying or replacing these leads will void the warranty.

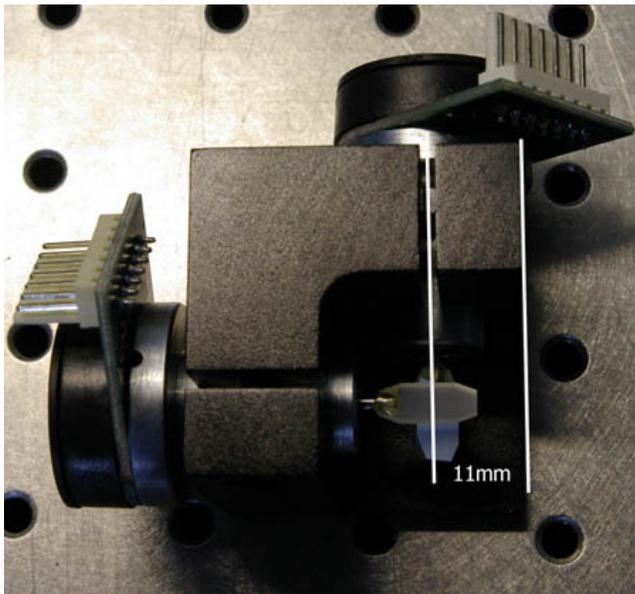
The warranty will be rendered void if the scanners have been misused or the scanners have been tampered with. Dragon Tiger scanners come pre-tuned and should not need adjustment by the user. If you have no experience of tuning scanners it is recommended that you do not attempt to do this as setting the scanners up incorrectly may damage them and will void the warranty. The only pot you should adjust is the scale adjustment pot (shown above). Note tuning this clockwise will reduce the scan size in that axis.



Mounting your scanners.

Use the diagrams at the back of this manual to mark and drill mounting points to fix the scan block and scanner amplifiers. A common mistake is to mount the scanner block centrally in the laser aperture window, this is not correct as the scanner output will not come from the centre of the block but the centre of the scanner X/Y mirror combination. With a little care and planning you will be able to get the scanner position right first time.

The scanners should be mounted so that the centre of the window corresponds to the centre of the shaft of the X-axis scanner. This is 11mm from the right hand edge of the block as shown on the diagram below.



To determine the scanner block height in the window you need to know the height of the Y-axis scanner shaft from the base of the block. DT scanners have a low block height in comparison to many other scanners – the height of the Y-axis mirror is 25mm for the standard size mirrors (including DT40 Wide) or 27 mm for the larger sizes mirrors. We recommend making a block up of the correct thickness to lift the scanners to the desired height. This can also be useful as you can make the block larger than the scan block and provide holes through which you can screw the scanners down to the laser base plate from above (this makes life much easier if you need to remove the scanners at any time in the future). The scan block can be fixed to this spacer block from below using

counter-sunk screws (the threaded holes in the block are tapped for M4 and are approx. 13mm deep). To determine the block size (thickness) work out where your output window will go in the front panel of the projector. Measure the distance between the centre of the window and the top of the base plate the scan block is mounted onto. Now subtract the Y-axis shaft height (shown above) for your model of scanner from the measured value and that will leave you with the height of spacer block you will need to obtain.

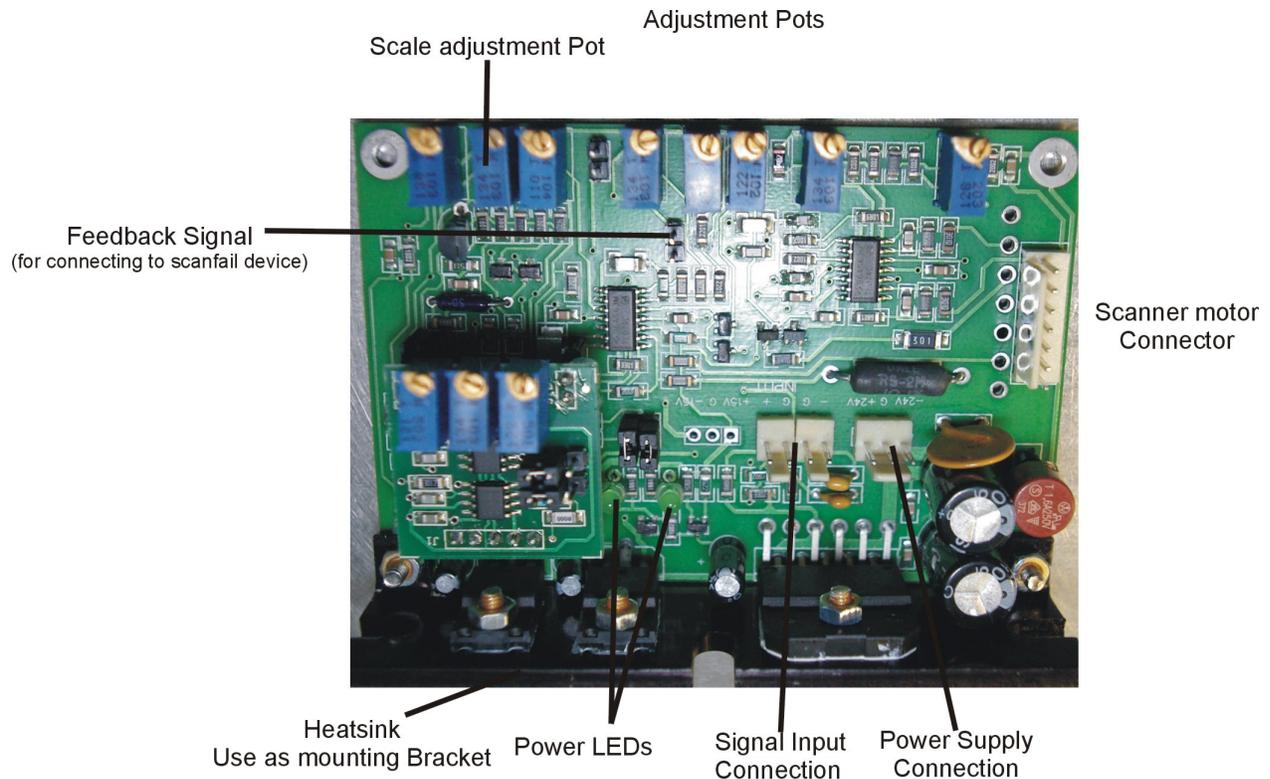
For example using standard mirrors and with a window centre at 40mm above the base plate surface the block will need to be 15mm thick.

Connecting everything up

Connect your scanners up using the cables provided, the driver and the scanner motor will be clearly marked for X and Y axis. It is very important that the correct amplifier is connected to its matching scanner as they are tuned as a matched pair. The scanners are designed to have the beam entry to the right of the scan block (as shown on the image above). This makes the X scanner the lower one of the two. If you wish to rotate the scan block through 90 degrees and use a beam entry from the left, that is perfectly acceptable but the role of each scanner will become reversed i.e. Y scanner (as factory marked) will need to be considered as the X scanner and vice versa. This does NOT mean that the scanners will connect to a different scanner amplifier, it just means you will need to swap the x and y signals going into the scanner amplifier boards. So feed the X signal into the amplifier and scanner pair marked Y

Before powering everything up make sure that the Power cables from the PSU are connected to the correct pins on the amplifier card. V1 on the PSU is +24v and V2 is -24V. If these are reversed damage to the amplifier card will occur. On power up the 2 leds on each amplifier will light up, if they don't something is wrong so remove power and check everything.

Scanner driver detail



Centring the scanners

If you have gone to the trouble of setting the scanners in the centre of your aperture window then its important to make sure the scanners are pointing the scanned image dead straight ahead. This is a simple procedure but will require you to have the scanners fully mounted in your projector with the lasers in their final positions. It is important to make sure the beam coming from the laser to the first scanner mirror is at 90 degrees to the mirror as if it is not the scanned image will be twisted with one side being higher than the other. Once you are happy this is correct you can centre the scanners.

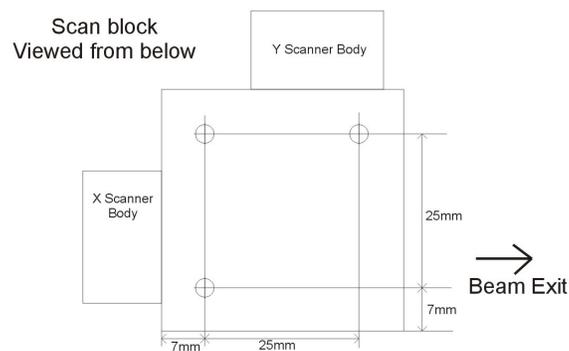
- With power to the projector off, disconnect the x & y signal inputs to the scanner amplifiers.
- Loosen the bolts in the scan block that pinch the housing around the scanner - do this for whichever axis needs adjustment - the scanner should move smoothly & easily but not be too sloppy in the mount. For DT scanners a 3mm allen key will be needed.
- Power up the projector - the scanners will find their 'home' centred position.

- Output some content at low power so the laser(s) light up but you don't burn a hole in anyone or anything with a static beam.
- Gently rotate the scanner - avoiding touching the electrical connections on the pcb - until the beam is exiting square to the case in the required axis
- Hold the scanner while tightening up the bolt. Tighten this up without using excessive force, as long as the scanner is held firmly and can't rotate then the bolt is tight enough.
- Remove power off and re-connect the signal inputs

Service/Spare parts

We can provide spare parts for your DT scanners and always keep broadband-coated mirrors (Standard and large) in stock. Please note that scanner mirror replacement will require the scanner to be re-tuned. We will be happy to fit the mirrors for you and re-tune your scanners to be certain they are fitted correctly. If you have a problem with your DT scanners please email us or call and we will be happy to help you out.

Scan block drilling diagram



Scanner driver drilling diagram

It is recommended to use only the outer pair of mounting holes.
Drill to 3.3mm to tap for M4

