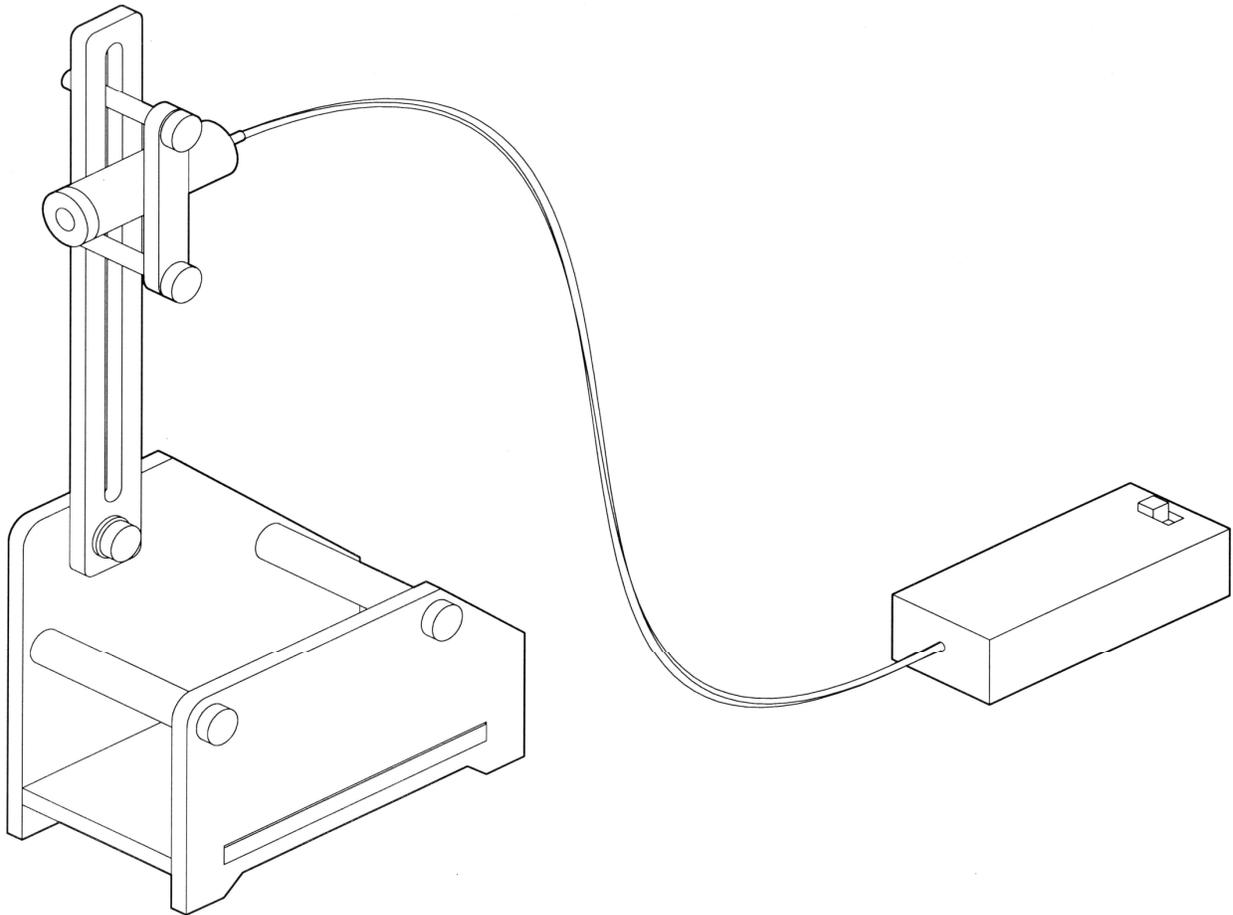


**TriAngles™ 3D Circumference Scanner  
Laser Support Stand Assembly Instructions V1**



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**TriAngles 3D Scanner Laser Support Stand Version 1 DESIGN**  
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## 1. Introduction

The Laser Support Stand is a simple construction that supports the positioning of an adjustable focus laser module. A small battery holder with switch supplies the laser module with power. The battery holder is not attached to the support stand. This is done in order to prevent moving of the support stand from an aligned position when switching the laser on or off.



**Adjustable Focus Laser supplied by Apinex  
LML 3mW, 635nm  
[www.apinex.com](http://www.apinex.com)**

**Do Not Look Into Laser Beam**

## 2. Tools

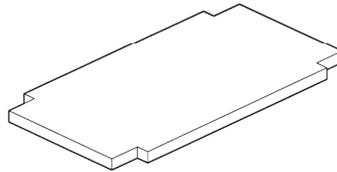
1. Wire Stripper
2. Soldering Iron (sharp tip)
3. Solder (for electronics)
4. Small pliers
5. Lighter (for shrink tube)

## 3. Parts List

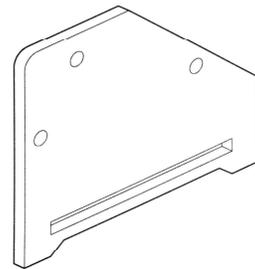
1x 4A



1x 1A



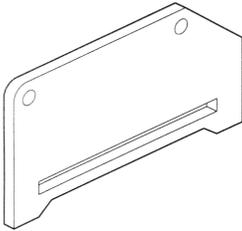
1x 2A



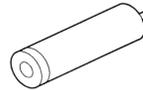
1x 5A



1x 3A



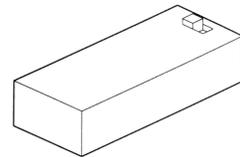
1x C1



2x C3



1x C2



4x F1



1x F2



2x F5



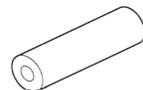
1x F3



2x F4



2x Batt1



Qty.	Part	Name	Size (mm)	Remark
1	1A	Base Plate		
1	2A	Support Plate		
1	3A	Side Plate		
1	4A	Support Bracket		
1	5A	Clamp Bracket		
1	C1	Focus Adjustable Laser		
1	C2	Battery Enclosure	AA	
2	C3	Threaded Spacer (black stand-off)	M4 x 40	
4	F1	Bolt	M4 x 12	
1	F2	Bolt	6-32X1/2	
3	F3	Nut	6-32	
2	F4	Washer	#6	
2	F5	Bolt	6-32X1	
2	Batt1	Battery	AA	Not Included

#### 4. General Guidelines

3 main aspects must be observed during assembly:

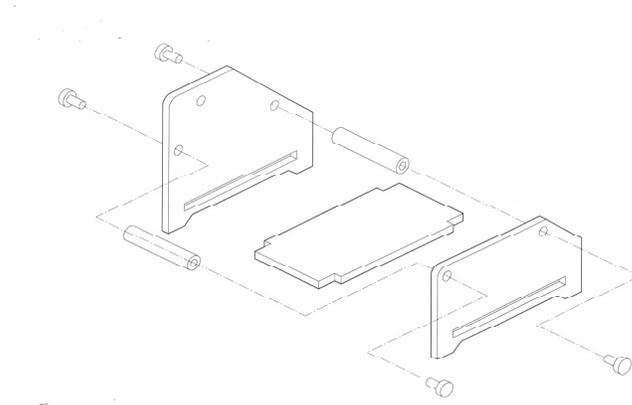
1. The panel material is supplied with a protective layer. This should be removed only when necessary. The base material is not scratch-resistant.
2. Handle the laser with care. Avoid looking into the laser beam.
3. Before assembly it is advised to first read through the instructions carefully as well as lay all major parts in position.

#### 5. Soldering the Laser Leads to the Battery Enclosure

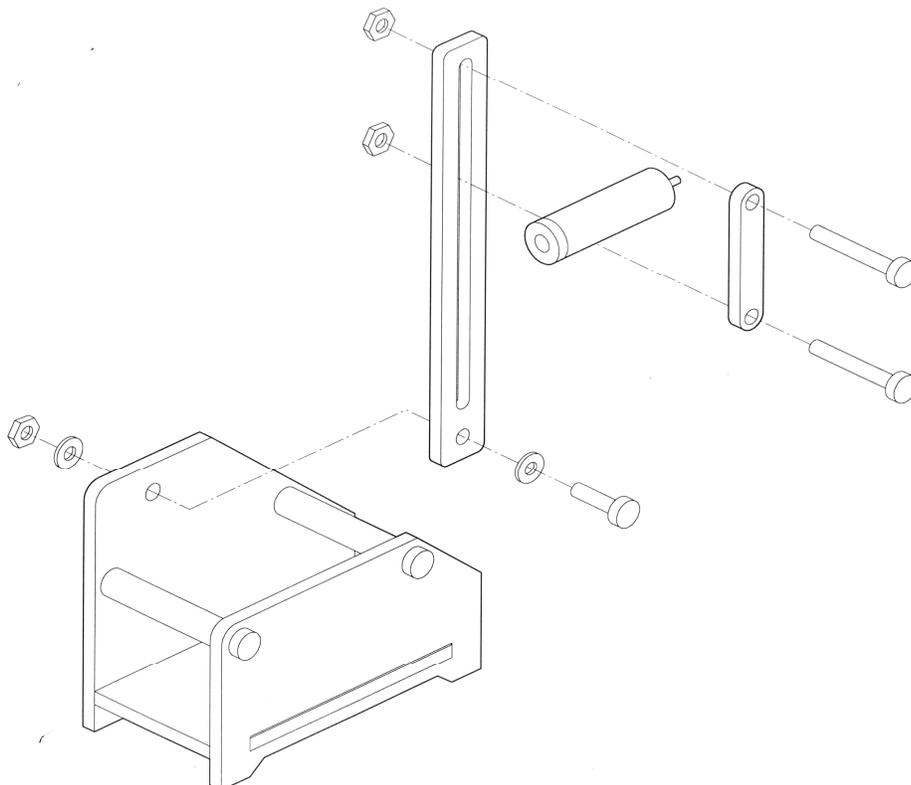
Remove about 5mm of insulation from the leads of the laser (C1) and battery enclosure (C2). Tin all leads with solder using a solder iron. Cut 4 10mm pieces of shrink tube and slide one over each lead. Hold 2 leads of same color together and solder. Make sure the shrink tube does not get too close to the soldering or the heat will shrink it. Do the same for the rest of the leads.

#### 6. Assembly

Peel the protective layer off of the Support Plate (2A) and using bolts (F1) screw on the 2 40mm black stand off's (C3). Place the Base Plate (1A) into the slot of the Support Plate (2A) and the slot of the Side Plate (3A) on the other side of the Base Plate. Use bolts (F1) to fasten the assembly. Attach the Support Bracket (4A) using bolt (F2), washers (F4) and nut (F3) to the Support Plate (2A).



Clamp the laser (C1) to the Support Bracket (4A) using the Clamp Bracket (5A) and bolts (F5) and nuts (F3). Do not clamp too tight as this can damage the laser. The clamping force should be enough to hold the laser in a fixed position while still allowing adjustment to be made.



## 7. Adjusting the Laser

The laser support stand is usually positioned at about 400 mm from the turn table. The laser line should be focused to the thinnest possible line at this distance. The line should also be perfectly vertical. It is important that this be done as accurately as possible to insure good scanning results.

The supplied laser allows focusing by gently turning the brass front piece. Position the support stand at about 400mm from a wall and turn the brass piece until the thinnest possible line thickness is attained. The black cylinder portion of the laser must be held in position during focusing.

To set the line vertically, stick a piece of paper on a wall and using a pencil and Level Set draw a straight vertical line on it. Move the support stand back to about 3-4 meters and adjust the position of the laser line by turning the black laser cylinder until it lines up with the drawn line. It is presumed that the floor or table that the Laser Stand is standing on is flat and leveled as well.