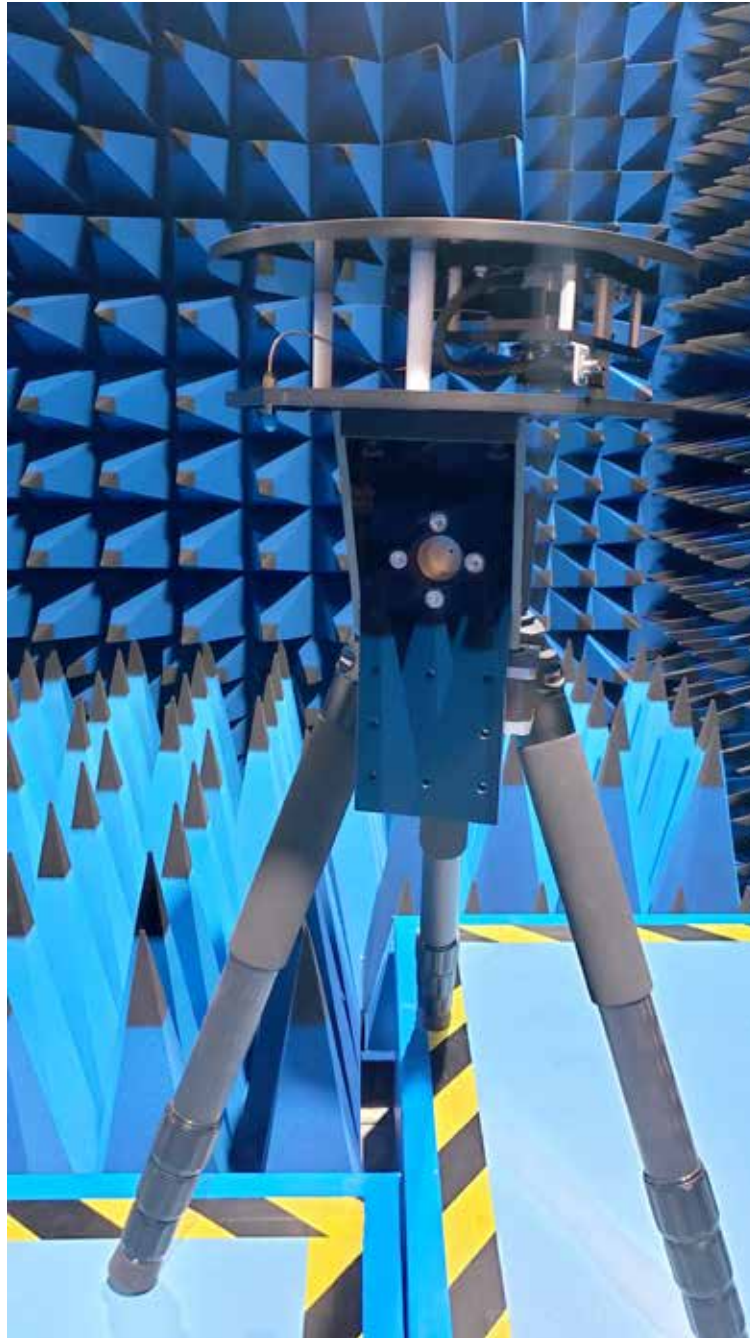


Installation and Configuration Guide



X0-90 Elevation Stage

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Automated Measurement Systems

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OPT-X0-90 - Introduction

Overview

Option X0-90 provides +/- 90 degrees of elevation tilt for the x000 series turntable, this option replaces the legacy +/- 45 degree tilt option. The stage is compatible with any DAMS Controller and software releases after November 2019. This option includes provisions for both "Top Mount" and Side Mount configurations.

Package Contents

- X0-90 Elevation Stage
- Aluminum tripod mounting bracket
- Acrylic mounting plate for DAMS Turntable
- 4 x 1/4-20 x 1.25" black nylon thumb screws
- High capacity carbon fiber tripod w/ adjustable neck.



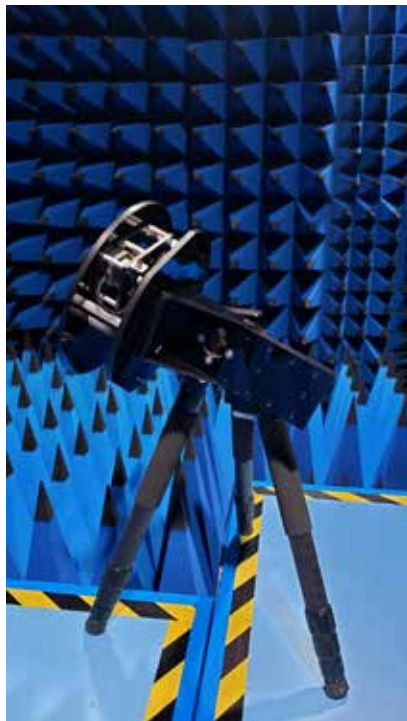
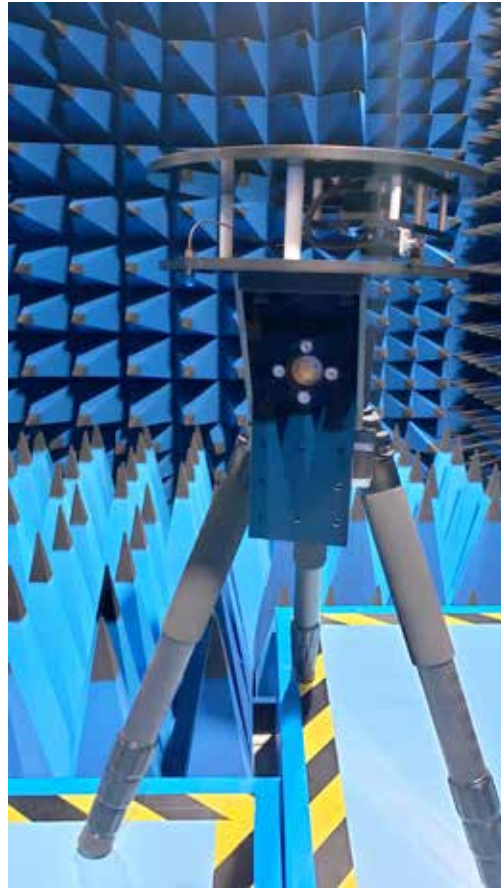
Elevation Stage Assembly - TOP MOUNT

Mounting

1. Expand Tripod Legs
2. Loosen Mounting Clamp (fig.1)
3. Thread tripod bolt into aluminum stage bracket, orient so that the mount can swing freely (fig. 2)
4. mount the acrylic mount to the rotary stage using the 4 x 22mm M-6 Screws ,
5. Mount turntable to mount sing the 4 x 1/4-20 x 1.25" nylon thumb screws
6. Connect yellow cable with 9p DSUB connector to the rotary stage.
7. Connect other yellow cable with right angle to DAMS Turntable.



Elevation Stage Assembly - TOP MOUNT - Complete



Elevation Stage Assembly - SIDE MOUNT

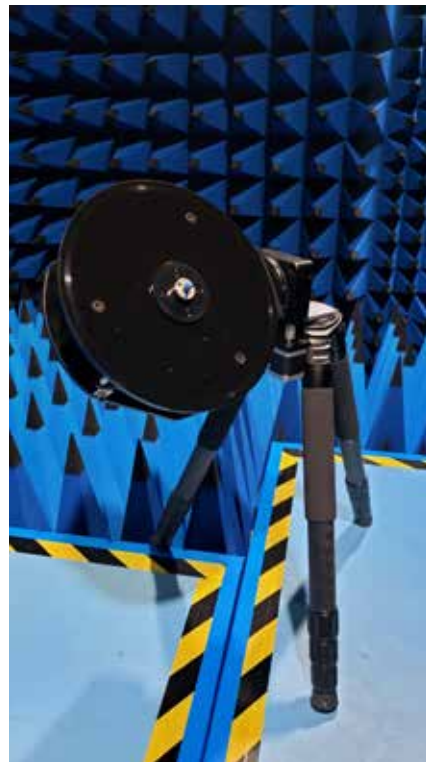
Mounting

A counterweight may be needed on the tripod legs or hung from tripod hook!

1. Expand Tripod Legs
2. Loosen Mounting Clamp and spin silver hub to thread into aluminum bracket (Fig. 1)
4. Mount the acrylic mount to the rotary stage using the 4 x 22mm M-6 Screws ,
5. Mount turntable to mount sing the 4 x 1/4-20 x 1.25" nylon thumb screws
6. Connect yellow cable with 9p DSUB connector to the rotary stage.
7. Connect other yellow cable with right angle to DAMS Turntable.



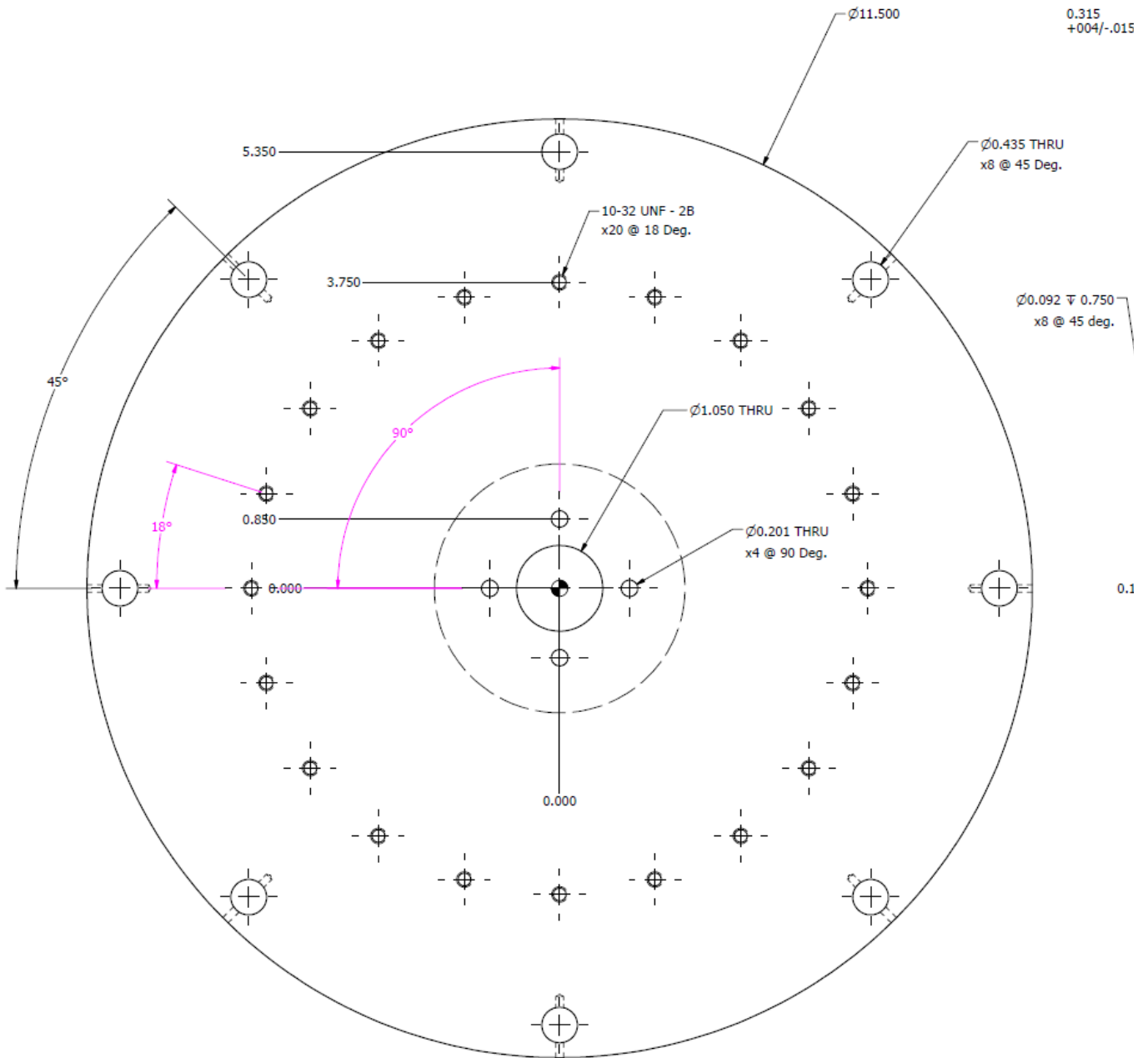
Elevation Stage Assembly - SIDE MOUNT - Complete



x000 Turntable AUT mounting holes

AUT Mounting Holes

The Polarizer's rotating plate has 20x 10-32 UNC threaded mounting holes in a circular pattern. The dimensions below can be used to make custom mounting brackets.



Software and Controller Installation

Software Installation -

1. Install the file located on the flash drive that was included with your system, this will install the Dams Antenna Measurement Studio. Also located on the flash drive is control documentation for controlling the positioner through custom software or Python Module.
2. Refer to the main installation manual OR the quick setup sheet given with the system to enter your license key etc.

Controller Installation -

1. Connect the controller to the PC, Open device manager (Control Panel → System → Hardware Tab → Device Manager). Note which COM port your DAMS controller is currently configured on. Close device manager. If you need a driver it can be found in c:\dams\driver
2. If the COM port is greater than 8 , right click and select properties, and change to 8 or lower

DAMS Software Configuration for Opt. X0-90

DAMS Software Configuration for X0-90 90 degree tilt feature for x000 series systems (applies to s/n 2018xxx and above controllers)

1. Open the DAMS Measurement software and select "positioner settings" from the upper right corner of the screen.
2. Select USB-SERIAL from "Select Controller"
3. Press "Find" to find the controller
4. If it does not find the controller ensure it is not above com8 in device manager
5. Enable mini stepping for both axis
6. Check "Full Spherical Mount" box

7. Motor Resolution and Gear Ratio

AZ (phi / roll / turntable)

Motor Res: .1125

Gear Ratio: 14.4

Elevation / Tilt

Motor Res: .1125

Gear Ratio: 90

8. Speed Settings

HORIZONTAL

Start: 1000

Stop: 10,000

Slope: 8

VERTICAL

Start: 1000

Stop: 2000

Slope: 5

After you have configured the settings above, press "SAVE" then "Restart with Default Extents"

The screenshot displays the DAMS software configuration interface. On the left, the 'Motor and Control Settings' panel includes a 'Select Controller' dropdown set to 'USB/SERIAL' (marked with a red '2'), an 'Auto-Find Status' section with a 'Find' button (marked with a red '3'), and 'AZ Motor Res. EL' and 'AZ Gear Ratio EL' input fields with values 0.1125 and 14.4 respectively (marked with a red '7'). The 'Full Spherical Mount' checkbox is checked (marked with a red '6'). Below this is the 'x100 Positioner Settings' section. On the right, the 'USB Horizontal - Speed and Acceleration Settings' panel shows sliders for 'Start Speed' (1000), 'End Speed' (10000), and 'Slope' (8) (marked with a red '8'). A 'Mini Stepping' checkbox is checked (marked with a red '5'). Below that, the 'USB Vertical - Speed and Acceleration Settings' panel shows sliders for 'Begin Speed' (1000), 'End Speed' (2000), and 'Slope' (5) (marked with a red '8'). A 'Mini Stepping' checkbox is also checked (marked with a red '5'). A warning message is visible: 'WARNING: Do NOT turn on unless you recieved your DAMS System after 6/05'. A 'Save' button is located at the bottom of the Motor and Control Settings panel.

See Important Current Settings on Next page

DAMS Software Configuration for Opt. X0-90

Custom Current Configuration (set within positioner settings)

1. Open the DAMS Measurement software and select "positioner settings" from the upper right corner of the screen. Press "Advanced Current Settings"
2. Enable custom current for Y axis only as shown below
3. Enter in the settings for the Y axis shown below, this will provide enough current for the tilt stepper motor

The screenshot shows the 'Motor and Control Settings' window in the DAMS software. A red box highlights the 'Advanced Current Settings' button. A warning dialog box is displayed, stating: '**** WARNING **** Do NOT enable these options unless instructed to do so us or your system documentation, setting too much current can destroy the stepper motor windings. These settings only apply to controllers with microstepping and software controlled current.' The main settings area is divided into two sections: 'Medium Current 2 Axis Controllers (LC4)' and 'High Current 3 Axis (MC3 / MC4)'. The 'Medium Current 2 Axis Controllers (LC4)' section shows settings for X and Y axes. The X axis has 'Custom Current' disabled, with Run Current at 50, Hold Current at 25, and Dwell at 10. The Y axis has 'Custom Current' enabled, with Run Current at 150, Hold Current at 50, and Dwell at 10. The 'High Current 3 Axis (MC3 / MC4)' section shows settings for X, Y, and Z axes. The X axis has 'Custom Current' enabled, with Run Current at 75, Hold Current at 20, and Dwell at 10. The Y axis has 'Custom Current' enabled, with Run Current at 100, Hold Current at 50, and Dwell at 10. The Z axis has 'Custom Current' disabled, with Run Current at 65, Hold Current at 15, and Dwell at 10.

Controller Type	Axis	Custom Current	Run Current	Hold Current	Dwell
Medium Current 2 Axis Controllers (LC4)	X	<input type="checkbox"/> Disabled	50	25	10
	Y	<input checked="" type="checkbox"/> Enabled	150	50	10
High Current 3 Axis (MC3 / MC4)	X	<input checked="" type="checkbox"/> Enabled	75	20	10
	Y	<input checked="" type="checkbox"/> Enabled	100	50	10
	Z	<input type="checkbox"/> Disabled	65	15	10

X0-90 Specifications

Elevation Stage

Ratio:	90:1
Resolution:	0.02° - Full Step 0.0625 ° - 1/16th microstep
Drivetrain:	1.5A/phase Bipolar stepper motor with worm drive
Holding Torque:	N/A
Movement Range:	360° continuous or indexed
Position Feedback:	None- Open loop, position maintained by software
Weight (Stage/Bracket only):	6 Lbs. / 2.7 Kg

Max Speed:	30 R.P.M. (light load)
Mounting Options:	M6 Through hole or M4 rear mount

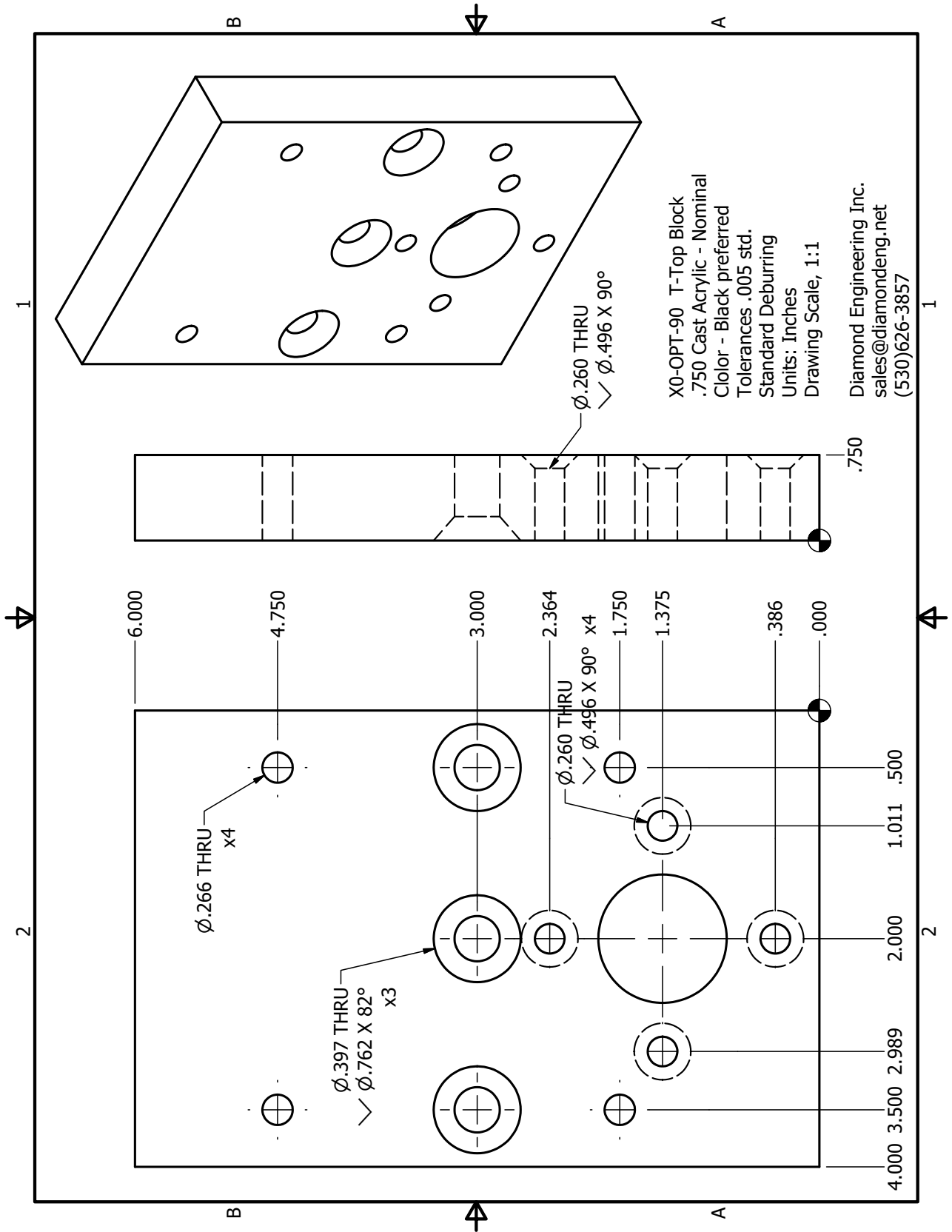
Composition:	Elevation Stage: Aluminum Turntable Bracket: Acrylic
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Weight Capacity:	4.5 Kg (Top Mount) 9 Kg (Side Mount)
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Controller

Controller type:	2 axis microprocessor based controller
Resolution:	Full step / half step / Microste
Motor Current:	1.5A per motor phase max (requires cooling)
Motor Connector:	4Pin-F PICO series connector
Communication Interface:	USB-Mini B to internal RS232 Optional DB9 RS232 serial port with external USB adapter
Communication cable length:	2 Meters (Included)
Input Voltage:	24VDC 2.5A
Power Supply (included):	24VDC 2.5A - 110/220v input
Motor cable length:	6 Meters

Part Drawings - Small Acrylic Bracket



Troubleshooting and Support Info.

Troubleshooting

1. Check all connections and ensure the controller and power supply are on.
2. Be sure you have the proper COM port selected and movement is NOT disabled.
3. Check to see that you have 2 DAMS related COM ports showing in Device Manager, disconnect one Controller to verify which COM Port is assigned to the other controller as they will both have the same name.

If you still cannot resolve the issue, please contact us.



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