



Artscanner User Guide 1.0

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Artscanner

Legal Information

Certification

Specim, Spectral Imaging Ltd has developed Quality Management System for its use covering design, development, manufacturing, sales and support of optical measurement devices. QMS follows ISO9001:2015 and enables more efficient operation and product management in a systematic way utilizing metrics. Specim QMS has been audited by Bureau Veritas Certification Holding SAS – UK Branch and found to be in accordance with the requirements of the management system standards.

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Contacting support

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Overview

Specim provides several scanner accessories for its Spectral Cameras and AISA sensors. With a scanner, a line imaging push-broom hyperspectral camera can be easily used to scan an image of a stationary target or scenery in the field and laboratory.

Specim Artscanner is specifically designed for scanning large paintings, wall frescos, archaeological targets and other valuable works of art.. It has a rail for the camera, which moves sideways scanning the target. It is possible to mount the camera either horizontally, with the lens facing forward, or vertically, with the lens facing downwards.



Caution: When scanning valuable targets, we recommend the horizontal scanning direction to avoid any damage caused by falling objects.

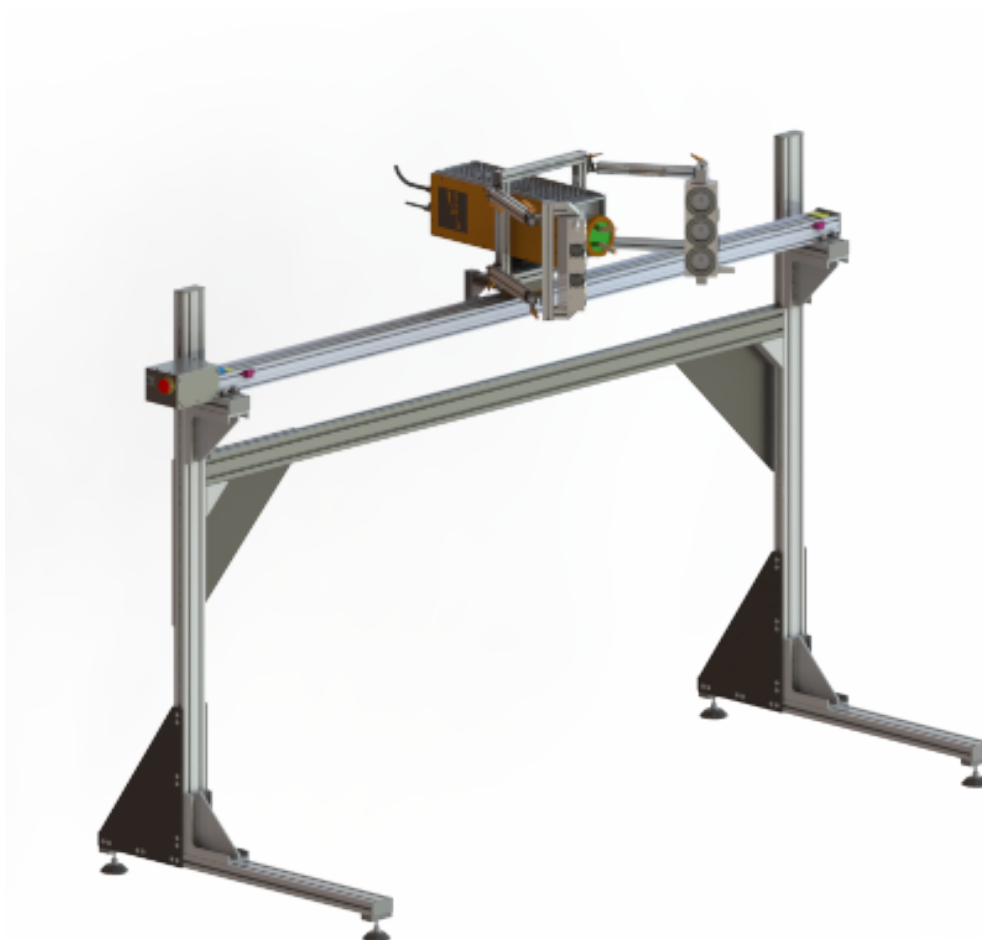


Figure 1: Specim Artscanner

Specim Artscanner can be used with the following Specim cameras:

- SWIR
- SCMOS
- FX10
- FX17
- PFD
- PFD 4K

Assembly Guide

Assembling the scanner frame

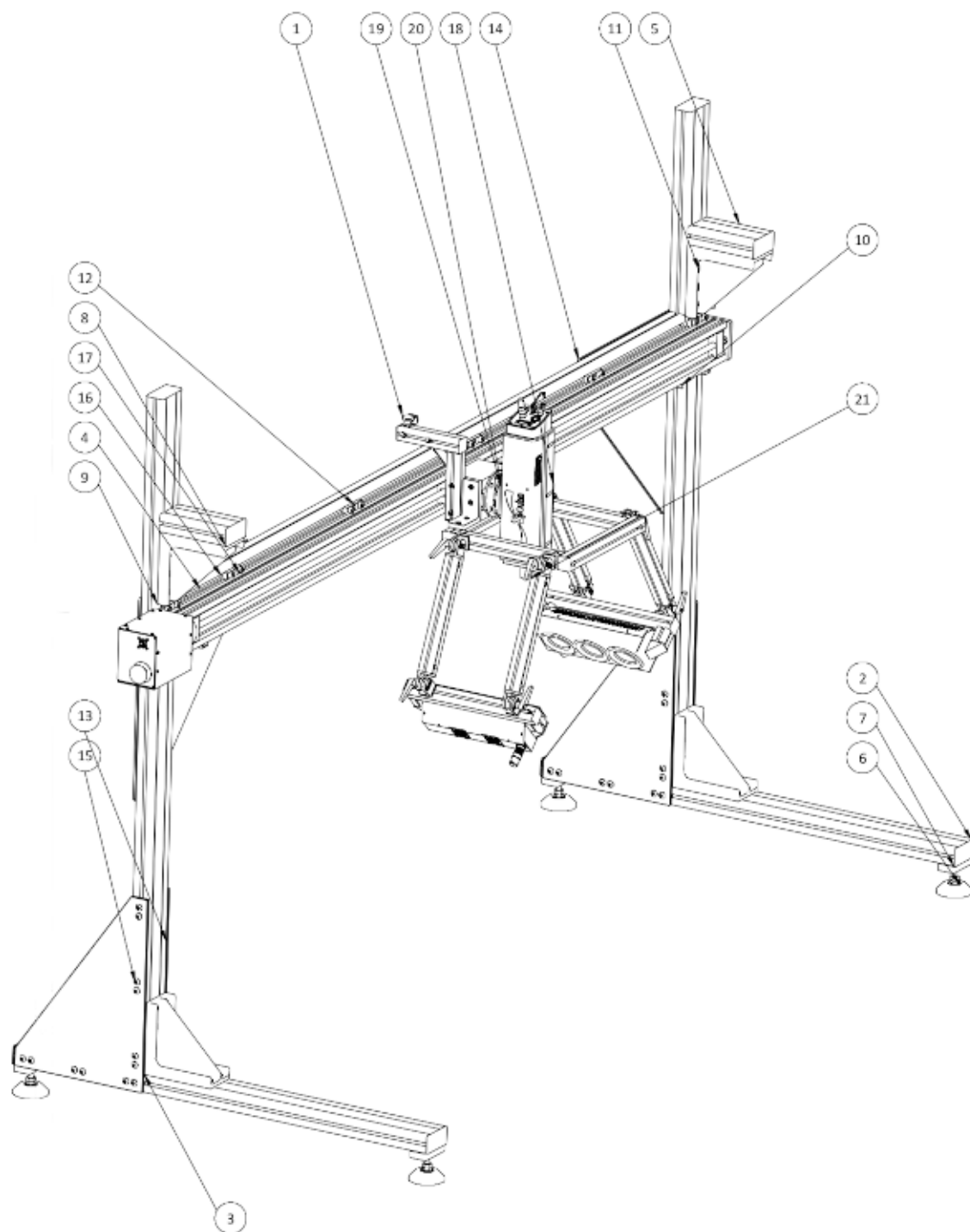


Figure 2: Specim Artscanner parts

1	Slide+Illumination package	12	Clamping cleat for Bislid
2	Floor profile	13	Bottom support for Art scanner frame
3	End frame	14	Large corner support for scanner frame
4	Horizontal profile	15	Ballhead screw M8x16
5	Horizontal support	16	T-Slot Nut V 8 St M8
6	Knuckle Foot	17	Allen bolt M8x16
7	Base Plate/Transport plate	18	Adapter plate 1
8	End plate	19	Adapter plate 2
9	Angle Bracket 8 160x160 Al M8	20	Spectral camera
10	Angle Bracket Set 8 80x80	21	Fore objective
11	Fastening Set for Angle Bracket 8 160x160 M8		



Caution: Do not assemble the scanner alone! Two people are required to safely assemble the scanner.

1. Check that the delivery is complete and intact.
2. Attach the vertical support bar between the scanner legs with small triangular brackets. Fix with 4 screws.
3. Install the triangular plates between the scanner legs and the vertical support bar to stabilize the structure. Fix with screws (16 pcs).
4. Mount the camera rail on the frame.

Note that the mounting location as well as camera slide orientation depend on whether you use horizontal or vertical scanning option.

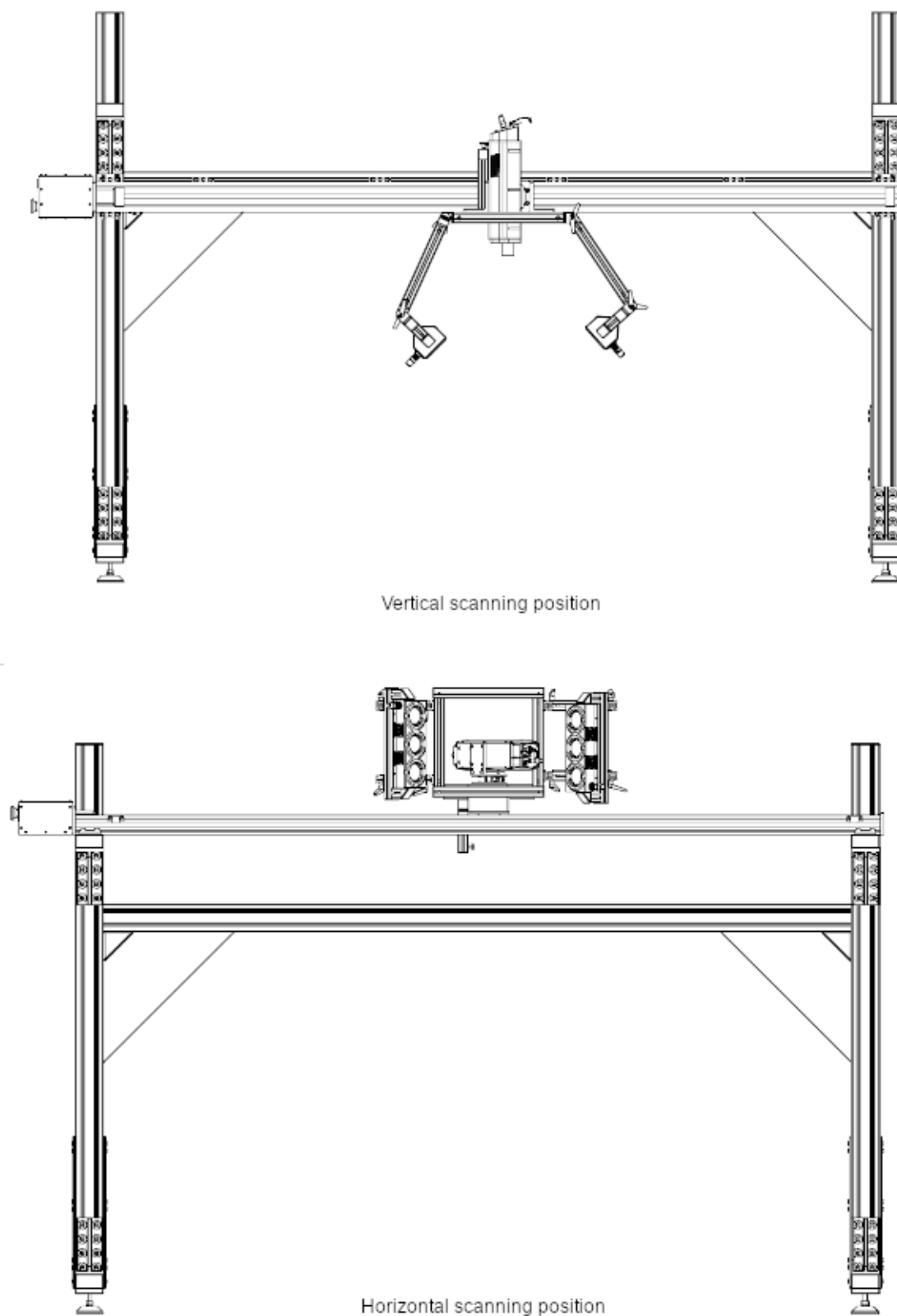


Figure 3: Installation options

5. Check the limit switch positions. The limit switches should be positioned to stop the scanner before the illumination frame hits the scanner frame.

Mounting the camera and illumination

The camera and the illumination unit can be installed either facing forward or facing down.



Caution: When scanning valuable targets, we recommend forward facing installation to avoid any damage caused by falling objects.

1. Fit the camera to the mounting plate on the scanner rail.
2. Slide until you hear a click. Tighten the screws.
3. Place the illumination unit around the camera.
4. Fix with 4 screws.
5. Attach the cable guide bracket on the mount with 2 screws.
6. Connect the cabling. Make sure that the cabling is free to move along the whole scanning range.

Operating the scanner

-  **Warning:** Hot surface! Do not touch the bulbs when the lights are on.
 -  **Warning:** Make sure there are no people close to the scanner when scanning. Scanner mechanics cause a risk of injury.
 -  **Caution:** Test and practice the system use with other targets before making any actual measurement(s) on valuable works of art.
 -  **Caution:** During the first test run, make sure that the limit switches stop the scanner before the illumination frame hits the scanner frame.
 -  **Caution:** It is safer to measure paintings and other valuable artworks horizontally rather than looking down (vertically).
 -  **Caution:** Consider the possible damage from the heating effect of halogen illumination when measuring very dark objects. We recommend using a hand-held, non-contact IR thermometer to monitor the heating.
 -  **Caution:** Do not leave the light on when the scanner is not in use as this may cause extensive heating.
1. Check that scanner mechanics is correctly assembled, camera and illumination are tightly fixed and there are no loose parts.
 2. Check that all cables are connected and the cabling is free to move along the whole scanning range.
 3. Power up the scanner system.
 4. Start computer and LUMO Scanner software. Define camera and scanner type and make basic settings: calibration file check, acquisition folder and file name settings.
See the LUMO Scanner Software manual for more information.
 5. Focus the camera lens using test grid (white and black stripes). Adjust illumination and set the integration time using white reference in each scanning workflow.
For best results, position the white reference next to the target so that it is included in each scan.
 6. Check that the emergency switch and the limit switches work.
 7. Check software workflow (dark, white, sample).
 8. Place the test sample and make preliminary test scan. Check the results.
 9. Adjust the illumination and/or scanning parameters if needed.
 10. Run the sample measurements.

Maintenance

The slide assembly should be lubricated with Velmex BL-1 oil for minimum friction and maximum life and repeatability. Re-lube when the lead screw and the ways appear dry. Continuous use with heavy loads may require daily lubrication.



Caution: Using any other lubricant than BL-1 may damage bearing pads, nut, or lead screw support bearing

1. Move the carriage to the middle of the rail.
2. Apply 3 to 4 drops of oil to the end of the carriage on the way surfaces and the lead screw threads

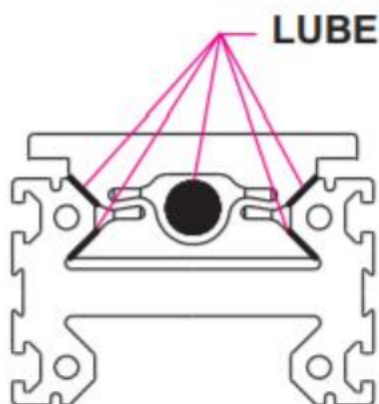


Figure 4: Lubrication points

3. Apply oil to both ends of the carriage.
4. Occasionally drop 1-2 drops of oil to the point where the lead screw enters the lead screw support bearing.

Artscanner technical information

Table 1: Labscanner technical information

Size (L x W x H)	ArtScanner 120: 1008 x 1693* x 1615 mm ArtScanner 190: 1008 x 2458* x 1615 mm *Includes the emergency switch 183 mm
Scanning length	ArtScanner 120: 120mm ArtScanner 190: 190mm
Weight	~60 kg
Scanning speed capabilities	ArtScanner 120: max. 150mm/s ArtScanner 190: max 100mm/s
Interface	Controlled through spectral camera or with a separate control cable, USB or RS232
Illumination	Halogen illumination for VNIR and SWIR
Illumination power unit input voltage	110-240 VAC
Scanner input voltage	24 VDC
Power consumption (max, without camera)	200 W

ArtScanner dimensions

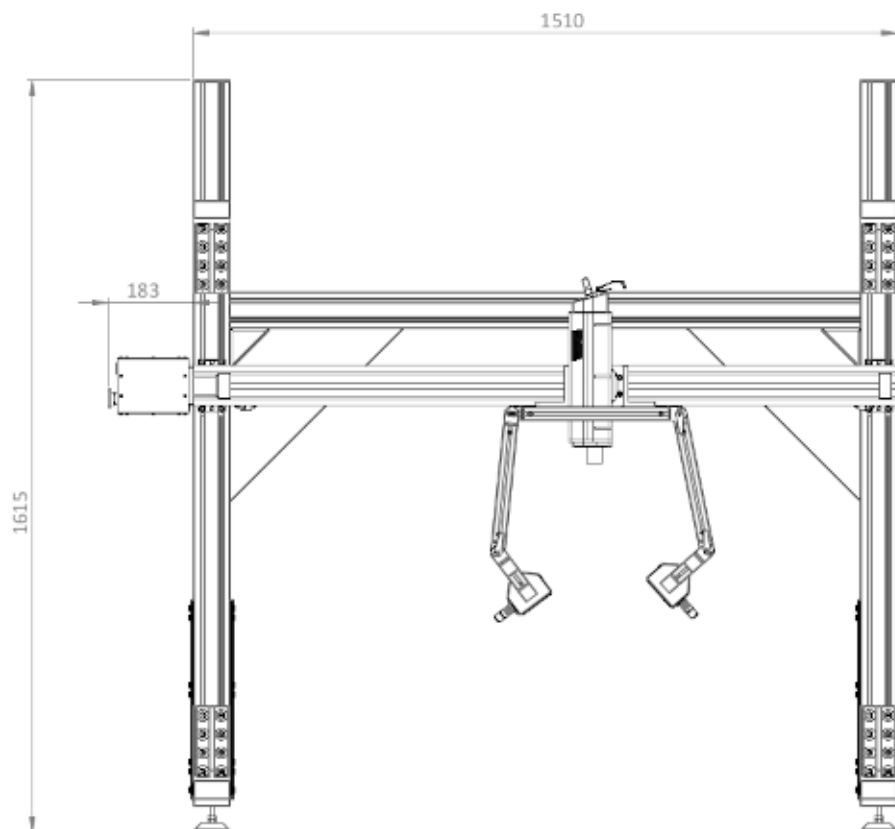


Figure 5: ArtScanner 120 dimensions, front view

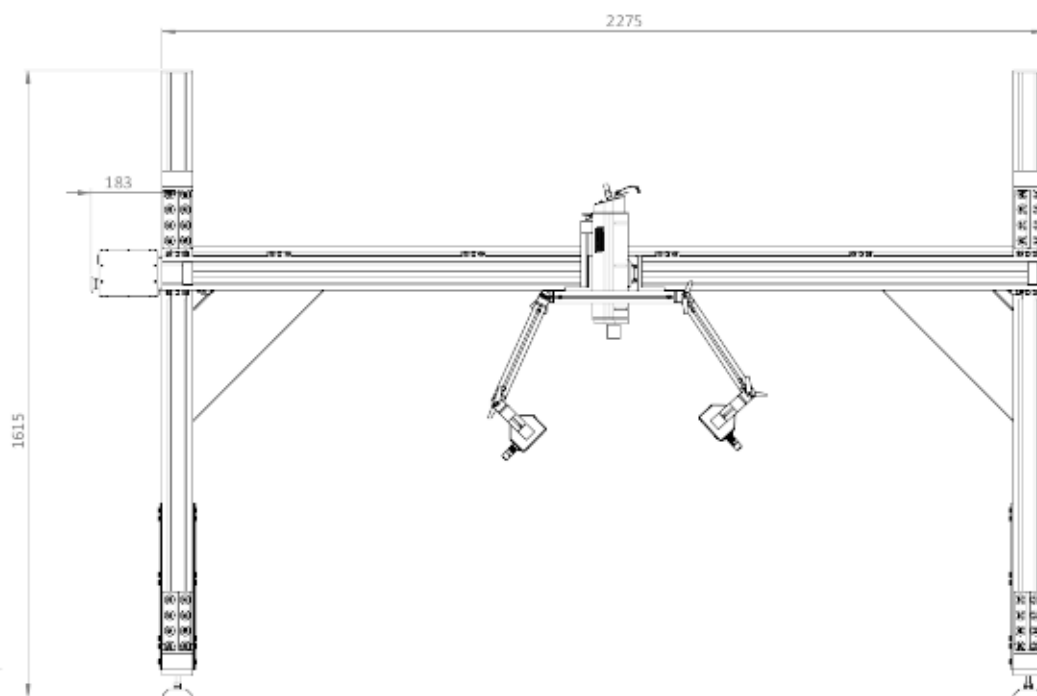


Figure 6: ArtScanner 190 dimensions, front view

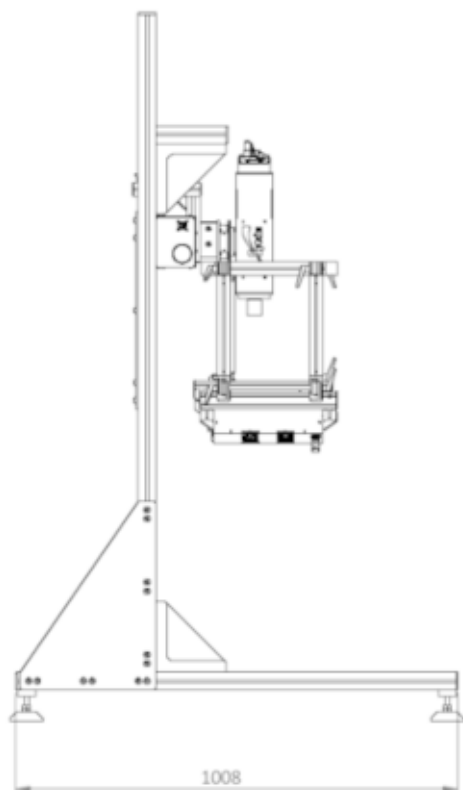


Figure 7: ArtScanner dimensions, side view