



System Training Checklist

Customer:	Project:
Trained By:	Project #:
Date:	Location:

General Information

The following system training checklist should be used as a guideline to ensure all relevant points are covered during customer training.

System Overview

Complete	Angstrom Manual Reference	
		Review utilities requirements and hook-ups including power/ water/ pneumatic gas/ vent/ purge/ glove box
		Electrical start-up/ building disconnect/ our disconnect/ what is powered when disconnect is off/ PC power on button/ access to the disconnect for safety
		System PC navigation/control software Icon/ Inficon deposition software Icon/ Angstrom Engineering folder
		System manual shortcut and file location/ review the manual/ all sections/ appendix/
	Chapter 1	Show location of system components as they relate to the screen/ pumps/ valves/ gauges/ interlocks/ light/ shutters/ solenoids/ stage motor/ cryo temp monitor/ heater controls/ Radak controls/ transfer components
	Chapter 2	Briefly explain the operation of the cryo pump/ approximate time to cool and regenerate/ regeneration intervals/ compressor pressure/ water or air cooled compressor requirements and considerations
	Appendix – Routine and Scheduled Maintenance	Review system maintenance/ debris shields/ adsorber/ rough pump oil (chamber and glove box)/ o-ring and seal face care/ gloves/ condensation/ preventative maintenance and cleaning/ spare parts list
	Chapter 1	Review safety concerns/ high voltage/ RF/ heat/ electrical shock potential inside the panels/ pump exhaust options and suggestions for chamber rough pump, cryo pump overpressure valve, and glove box rough pump and purge valve outlet.
		Review e-stop functionality/ what turns off and what remains powered
		PC maintenance and file back-up recommendations/ Inficon data base/ Anti-virus
		Network connection/ Real VNC or Tight VNC/ remote access/ firewall and security/
	Appendix – AE Contact Information	Points of contact at Angstrom/ customer service/ quotations/ problems/ feedback/
	Electrical and Appendix Sections	Troubleshooting/ electrical drawings/ fuses and fuse location/ hard restart/ system components section of the manual/ how to recognize a blown fuse/ safety
	Chapter 2	Review the “What every operator should know before operating the system” section



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Control Software		
Complete	Angstrom Manual Reference	
	Chapter 1	Explain PC to PLC relationship/ Inficon to PLC path
	Chapter 5	Control software login/ log out/ Supervisor & Supervisor/ Operator & Operator/ higher login levels and differences/ changing passwords
	Chapter 3	Briefly explain sequence steps of automatic modes/ manual mode/ no mode
	Chapter 4	Show manual operation of components and briefly explain interlocks for each
	Chapter 2	Review the interlock status page and the relevance of each interlock
	Chapter 2	Describe briefly the function of Temperature and Pressure and Timer and Counter Setpoints
	Chapter 5	Review the source detail and shutter control page/ all features explained/ Inficon shutter override consequences
	Chapter 5	Explain alarms/ acknowledging and resetting alarms/ alarm history/ clearing the alarm history
	Chapter 5	Go over other main page items/ system gas/ gauge pages/ degassing and calibration/ degas recommended frequency legend/ data logging/ chamber light
		Sample heating/cooling options and how to use/ interlocks/ safety precautions/ how to calibrate
		Transfer system training/ tips and tricks/ operation/ precautions/ minor adjustment/
Inficon Deposition Software		
Complete	Inficon Manual Reference	
	Chapter 3.2	Open the software and demonstrate how to close it/ reference Inficon manual in our manual/ simulate mode/ ability to download and run deposition software on a desktop for training and simulation/ interlocks to start
	Chapter 3.4.5	Explain the security options/ default login/ show how to change security
	Chapter 3.3.3	Show data logging options/ shortcut on desktop to files/ how to graph a data log
	Chapter 3.4.3	Explain materials/ how to add materials/ z-factor and density/ tooling factor concern
		Output and source index selections as it relates to the system at hand/ wrong combination alarm
	Chapter 3.4.2	Explain films and why they are used/ different material or rate or location requires a different film/ changing a value in



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		a film at any time is global to that film/ tooling factor and what can effect it/
	Chapter 3.8	Show film tabs in a process and where to choose the film for each layer in a process
		Explain each film tab and why the settings are chosen/ PID recommendations for different materials or sources/ (transformer voltage settings and why/ manual appendix section on how to change – Where applicable.)
	Chapter 3.4.1	Go over the process section/ create/ save/ layer and rate ramps tab/ generic films and processes/
		Describe the phases of Inficon/ communication to and from the PLC/ shutters/ stage rotation/ other comms for sputter or ebeam example crucible indexer or gas control/ when shutters open/ other items that may be triggered
	Chapter 3.10	Show how to set up a multi layer deposition/ starting options for each layer
	Chapter 2.7	Show how to set up a co-deposition/ special considerations for precondition, shutter delay, rates and final thickness for each material
	Chapter 3.4.4	Review system set-up/ outputs/ sensors/ indexers/ I/O relays/ card considerations/ communication items/ color options of graphed outputs/ graphing options tab on the screen
	Chapter 3.5	Explain different view selections in the view dropdown
	Chapter 3.5	Show the high resolution selection for the rate display
	Chapter 2.6	Auto and manual modes of operation/ differences/ switching back and forth
		Demonstrate loading a material or two and a substrate and pump down ready to deposit/ record material and location on the shutter page of the control software
	Chapter 2.5	Set up a single layer film and process by copying a pre-existing film and process.
		Demonstrate a multi-layer deposition
	Chapter 2.7	Demonstrate a co-deposition
	Chapter 3.1	Source thermal control if applicable
	Chapter 4.4	Troubleshooting
		Review Radak furnace precautions/crucible selection section/baffle use/thermal control options/precautions
		Review Resistive Source Size Chart

