

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

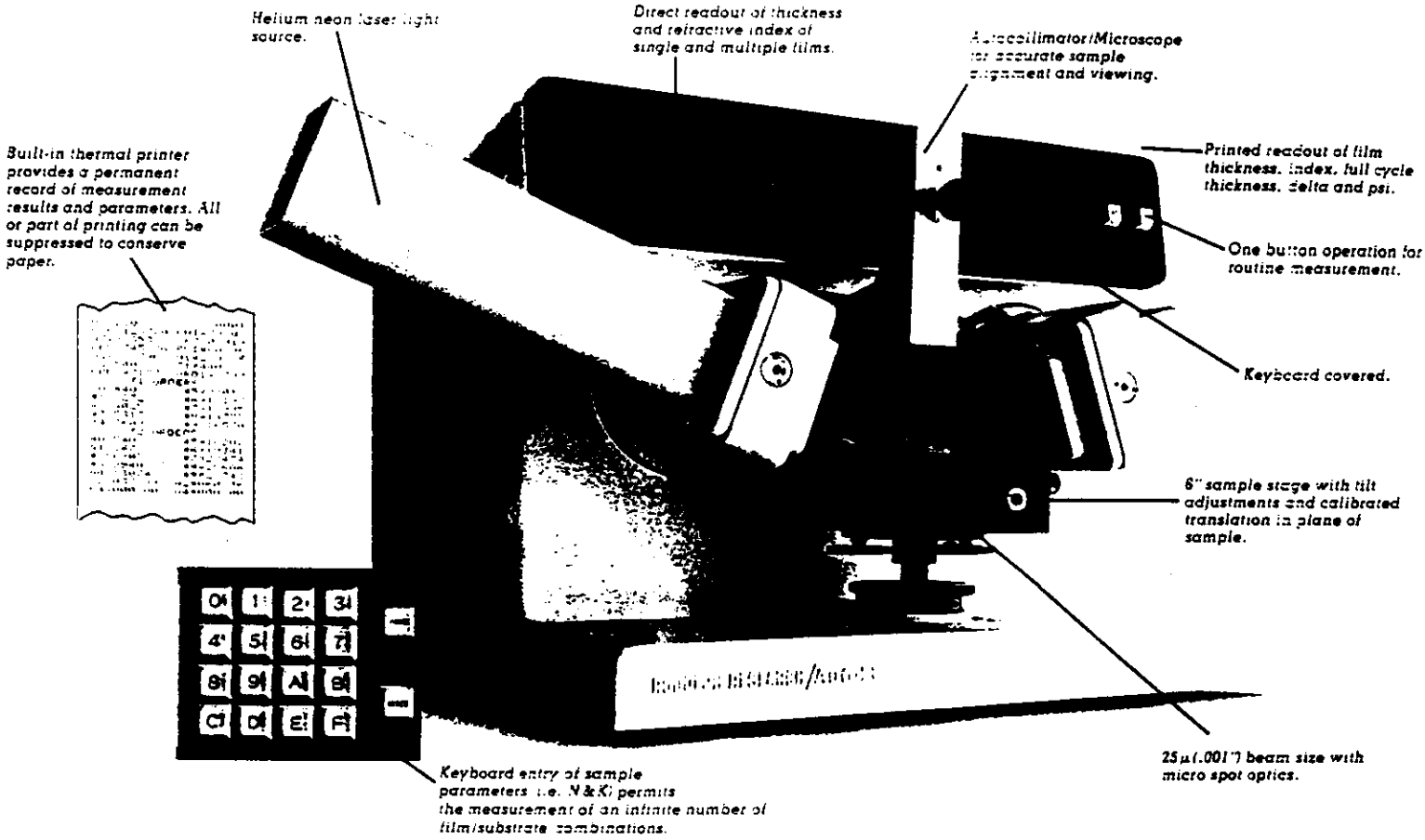
Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Rudolph Technologies A11188* at our website: *Click HERE*

The AutoEL® III

Automatic Ellipsometer



ALL NEW FEATURES

Automatic Measurement of Double Layer Transparent Films

AutoEL® III capability is extended to thickness and refractive index measurements of double layer transparent films such as nitrides over oxides and to the measurement of the optical constants of bare substrates such as silicon, gallium arsenide or gallium arsenide phosphide with direct readout of N and K.

Non-Volatile Memory

AutoEL® III contains non-volatile memory to store frequently used program specifications and input data. Stored information can be recalled by pressing one button. This feature of the AutoEL® III has the ability to handle complex multilayer measurements while retaining simplicity of operation.

Micro-Spot Optics

AutoEL® III has an optional reduced beam size of twenty five (25μ) microns permitting measurements within scribe lines and in areas as small as 25 X 75 microns. The micro-spot optics are removable for normal operation.

Autocollimator Microscope

AutoEL® III provides a unique Autocollimator/microscope design which permits accurate sample alignment as well as clear and easy viewing of areas of interest on patterned wafers. These features are essential to measurement accuracy particularly when samples are not perfectly flat and where the precise location of areas to be measured is critical.

RUDOLPH RESEARCH

the Ellipsometry Experts

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

FEATURES AND SPECIFICATIONS

The AutoEL® III

Automatic Ellipsometer

OPERATING PRINCIPLE Null Seeking

OPERATING WAVELENGTH 632.8nm

RESOLUTION & ACCURACY

Polarizer or Analyzer	0.05°
DELTA	0.1°
PSI	0.05°

Resolution and accuracy of measured film thickness and film or substrate refractive index depends on the film-substrate system and the film thickness. 3 to 10 Angstroms and 0.01 refractive index units are typical for silicon oxide films on silicon.

ANGLE OF INCIDENCE

Standard Pin Locations 70°± 0.02°and 90°±0.02°
Optional Pin Locations 60° & 80°

Optional pin locations are available at additional cost. Non-pin located angles may be set with specially cut alignment prisms.

MEASURING TIME

Typical

Single Film	15 seconds
Double Film	20 seconds

DISPLAY

Displays film thickness, index, order thickness, substrate N and K as well as prompting messages to the operator.

DIGITAL OUTPUT Serial ASCII, RS-232

RUDOLPH and SEMI Communication Standards.

MAXIMUM SAMPLE SIZE AND MOUNTING PLANE

6"X 6"(15.2cm X 15.2cm). Horizontal with vacuum holddown. Vacuum source not supplied.

STANDARD EQUIPMENT

Sample Stage:

The standard sample stage has vertical adjustment plus tilt adjustments about vertex of angle of incidence and about axis formed by intersection of plane of incidence with plane of sample.

Data Reduction:

Provides an integral library of unique programs and is easily upgradeable as future programs become available.

Autocollimator/Microscope

Microscope magnification 9X. Field of view 15mm. Internal light source for normal incidence sample illumination.

Thermal Printer

Built-in. Dot-matrix format. Alpha-numeric.

OPTIONAL EQUIPMENT

Option 2: Sample Stage

Option 2 sample stage has vertical adjustments plus two-axis tilt adjustments, plus two calibrated orthogonal translations in the plane of the sample. Translation range 1" (2.54cm), resolution 0.001" (0.025mm) in both directions.

Option 4A: Microspot Optics

Spot Size 0.001" (25μ)

The optional microspot optics are designed to be attached by the user to the polarizer module. Note that, although the beam cross-section is circular, the obliquely-illuminated sample area is elliptical — e.g., at 70° angle of incidence, the minor and major axes of the spot are 0.001" and 0.003" respectively.

Option 6: Angle of Incidence Alignment Prisms

Any fixed angle	60° to 90°
Accuracy, all prism angles	10 arc-seconds

DIMENSIONS

Without laser head	17⅜"H, 21¼"D, 21½"W
With laser head	17⅜"H, 21¼"D, 27½"W

WEIGHT 87 lbs. (39kg)

WARRANTY

The Rudolph Research AutoEL III carries a one year limited warranty. Detailed warranty information available upon request.

LASER SAFETY

The AutoEL III is a Class II laser product as defined by Federal Regulations 21 CFR 1040, and meets all applicable performance and labeling requirements of those regulations. The helium-neon laser light source in the AutoEL III is a low-power laser which emits only the 632.8nm red line at a level of 0.2 milliwatt maximum. As with any high-luminance source such as the sun or an arc lamp, the operator should not stare directly in the laser beam or into its reflection from highly reflecting surfaces. The caution label is reproduced below.



For a Demonstration or Further Information Contact

RUDOLPH RESEARCH
1 Rudolph Road, Box 1000
Flanders, N.J. 07836 (201) 691-1300

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

RUDOLPH

AutoEL III SPECIFICATIONS

OPERATING PRINCIPLE : Null Seeking

OPERATING WAVELENGTH : 632.8nm

RESOLUTION & ACCUARCY:

Polarizer or Analyzer	0.05^{o}
DELTA	0.1^{o}
PSI	0.05^{o}

Resolution and accuracy of measured film thickness and film or substrate refractive index depends on the film-substrate system and the film thickness. 3 to 10 angstroms and 0.01 refractive index units are typical for silicon oxide films on silicon.

ANGLE OF INCIDENCE:

Standard Pin Locations	$70^{o} \pm 0.02^{o}$ and $90^{o} \pm 0.02^{o}$
Optional Pin Locations	60^{o} to 90^{o}

Optional pin locations are available at additional cost. Non-pin located angles may be set with specially cut alignment prisms.

MEASURING TIME (With Calculations):

Typical	17 seconds
Maximum	50 seconds

DISPLAY:

Displays film thickness, index, order thickness, substrate N and K as well as prompting message to the operator.

DIGITAL OUTPUT:

Serial ASCII, RS-232
SEMI Communication Standard

MAXIMUM SAMPLE SIZE AND MOUNTING PLANE:

6" x 6" (15.2cm x 15.2cm). Horizontal with vacuum holddown. Vacuum source not supplied.

SAMPLE STAGE:

The standard sample stage has vertical adjustment plus tilt adjustments about vertex of angle of incidence and about axis formed by intersection of plane of sample.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

DATA REDUCTION:

The double layer software package offers the user all the programs which are in the single layer software package with the additional capability of calculating the thickness and refractive index of a dual-layer film. User can calculate the parameters of the top film (TU & NU), while supplying the known quantities for the bottom film (TL & NL). Both bottom and top film thicknesses (TL & TU) can be calculated by supplying both refractive indices (NL & NU), calculations for the optical constants (N & K) of a bare substrate. This special software has a non-volatile memory feature which allows the user to store various sample parameters for subsequent measurements.

AUTOCOLLIMATOR/MICROSCOPE:

Provides convenient switching between autocollimator and microscope function. Microscope function provides a 4mm field of view, 40X magnification and cross hairs for viewing of sample and locating measurement area. Autocollimator provides precise and easy sample alignment.

THERMAL PRINTER:

Built-in. Dot-matrix format. Alpha-numeric.

POWER REQUIREMENTS:

Domestic
115V $\pm$ 10V 50/60Hz 130W

Export
100V $\pm$ 10V 50/60Hz 130W

Export
220V $\pm$ 20V 50/60Hz 130W

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP