



Film Wizard™

Optical Thin Film Software

6355 Corte Del Abeto
Suite C105
Carlsbad, CA 92011 USA
Tel. (760) 634-3822
Fax. (760) 634-3826
E-mail info@sci-soft.com

| Technical Features | Standard Version | Professional Version |
|--|------------------|----------------------|
| Design or Model Input | | |
| Physical or Optical Thicknesses | ✓ | ✓ |
| Allow massive or incoherent layers | ✓ | ✓ |
| Allow repeated groups | ✓ | ✓ |
| Allow multiple reference wavelengths | ✓ | ✓ |
| Mix physical, massive, optical layers | ✓ | ✓ |
| Convert optical to physical | ✓ | ✓ |
| Convert physical to optical | ✓ | ✓ |
| Include Substrate Backside Option | ✓ | ✓ |
| Angle Defined in Vacuum or Ambient | ✓ | ✓ |
| Design Spreadsheet | ✓ | ✓ |
| Reverse Layers Option | ✓ | ✓ |
| Layer pick-up/coupling | - | ✓ |
| Layer thicknesses in nm or microns | ✓ | ✓ |
| Evaluate Y vs. X (2d) or Z vs. Y&X (3d) | ✓ | ✓ |
| <i>Evaluation Parameters [Y(2d) or Z(3d)]</i> | | |
| % Transmission p,s,r | ✓ | ✓ |
| % Reflection p,s,r | ✓ | ✓ |
| % Absorptance p,s,r | ✓ | ✓ |
| Optical Density p,s,r | ✓ | ✓ |
| Transmitted Phase p,s,r | ✓ | ✓ |
| Reflected Phase p,s,r | ✓ | ✓ |
| Transmission (dB) p,s,r | - | ✓ |
| Reflection (dB) p,s,r | - | ✓ |
| Absorptance (dB) p,s,r | - | ✓ |
| Electric Field Amp. p,s | ✓ | ✓ |
| ψ and/or $\tan(\psi)$ | ✓ | ✓ |
| Δ and/or $\cos(\Delta)$ | ✓ | ✓ |
| User Defined Equation | - | ✓ |
| Color (CIE 1931, CIE 1976 and LAB) | ✓ | ✓ |
| <i>Evaluation Parameters [X]</i> | | |
| Wavelength nm, microns | ✓ | ✓ |
| Energy eV | ✓ | ✓ |
| Frequency GHz | - | ✓ |
| <i>Evaluation Parameters [X or Y(3d)]</i> | | |
| Angle of Incidence | ✓ | ✓ |
| Time | ✓ | ✓ |
| Stack Optical Thickness | ✓ | ✓ |
| Stack Thickness | ✓ | ✓ |
| Substrate n | ✓ | ✓ |
| Substrate k | ✓ | ✓ |

| Technical Features | Standard Version | Professional Version |
|--------------------------------------|------------------|----------------------|
| Ambient n | ✓ | ✓ |
| Thickness of any layer | ✓ | ✓ |
| n of any Material Symbol | ✓ | ✓ |
| k of any Material Symbol | ✓ | ✓ |
| Material Models | | |
| <i>Models</i> | | |
| NK Table | ✓ | ✓ |
| Cauchy | ✓ | ✓ |
| Cauchy Exponential | ✓ | ✓ |
| Sellmeier | ✓ | ✓ |
| EMA (Maxwell-Garnet) | - | ✓ |
| EMA (Bruggeman) | - | ✓ |
| EMA (Lorentz-Lorenz) | - | ✓ |
| Graded | - | ✓ |
| Rugate | - | ✓ |
| User Defined (Allows Temperature) | - | ✓ |
| Lorentz Oscillator | ✓ | ✓ |
| Drude | ✓ | ✓ |
| Temperature Dependent Cauchy | - | ✓ |
| Lorentz Oscillator + Drude | ✓ | ✓ |
| SuperLattice | - | ✓ |
| <i>Miscellaneous</i> | | |
| Thermal Expansion Provision | - | ✓ |
| Plot n&k of any Material | ✓ | ✓ |
| Create NK Table from Material Model | - | ✓ |
| Find equation coeff. From NK Table | - | ✓ |
| Optimization | | |
| <i>Methods</i> | | |
| Modified Levenberg Marquardt | ✓ | ✓ |
| Simplex | ✓ | ✓ |
| Statistical Monte Carlo (Global) | - | ✓ |
| Hooke & Jeeves | - | ✓ |
| Golden Section | - | ✓ |
| Global Simplex | - | ✓ |
| Global Modified LM | - | ✓ |
| Point by Point Fit | ✓ | ✓ |
| Normal Fit | ✓ | ✓ |
| <i>Fits</i> | | |
| Fit on thickness of any layer | ✓ | ✓ |
| Fit on n&k at any or all Wavelengths | ✓ | ✓ |

| Technical Features | Standard Version | Professional Version |
|--------------------------------------|------------------|----------------------|
| Fit on any Model or Equation Coeff. | ✓ | ✓ |
| Optional Constraints | | |
| Constrain Thickness of Any Layer | ✓ | ✓ |
| Constrain n&k | ✓ | ✓ |
| Constrain Model or Equation Coeff. | ✓ | ✓ |
| Limit n&k of Equation Based Mat. | ✓ | ✓ |
| Constrain Total Thickness of Stack | - | ✓ |
| Targets | | |
| % Transmission p,s,r | ✓ | ✓ |
| % Reflection p,s,r | ✓ | ✓ |
| % Absorptance p,s,r | ✓ | ✓ |
| Optical Density p,s,r | ✓ | ✓ |
| Transmitted Phase p,s,r | ✓ | ✓ |
| Reflected Phase p,s,r | ✓ | ✓ |
| ψ and/or $\tan(\psi)$ | ✓ | ✓ |
| Δ and/or $\cos(\Delta)$ | ✓ | ✓ |
| Color (CIE 1931, CIE 1976 and LAB) | - | ✓ |
| Up To Three User Defined Equations | - | ✓ |
| Allow > or < specification of Target | ✓ | ✓ |
| Target Generator | ✓ | ✓ |
| Allow Pasting of Targets | ✓ | ✓ |
| Miscellaneous | | |
| Worst Case Scenario | ✓ | ✓ |
| Statistical Analysis | ✓ | ✓ |
| Layer thickness pick-up/coupling | - | ✓ |
| Force Symmetric Designs | - | ✓ |
| Optimize on group thicknesses | ✓ | ✓ |
| Least Squares or Absolute Value | ✓ | ✓ |
| Import SOPRA Ellipsometric Targets | ✓ | ✓ |
| Import WVASE Ellipsometric Targets | ✓ | ✓ |
| Import CARY Targets | ✓ | ✓ |
| Synthesis | | |
| Needle | - | ✓ |
| Flip Flop | - | ✓ |
| Multi Branch | - | ✓ |
| Pattern Search | - | ✓ |
| Stochastic | - | ✓ |

| | | |
|---------------------------------------|---|---|
| Supports OLE Automation | - | ✓ |
| Supports DDE Communication | - | ✓ |
| Graphics | | |
| 2d Line Plots | ✓ | ✓ |
| 3d Contour Line Plots | ✓ | ✓ |
| 3d Contour Area Plots | ✓ | ✓ |
| 3d Patch Plots | ✓ | ✓ |
| 3d Surface Plots | ✓ | ✓ |
| Customize Titles, Fonts, Axes, Colors | ✓ | ✓ |
| Add Lines, Arrows, and Labels | ✓ | ✓ |
| AutoScale or Manual Scaling of Axes | ✓ | ✓ |
| Print Preview | ✓ | ✓ |
| Supports Color Plotters and Printers | ✓ | ✓ |
| Save Graphs as Full Color MetaFiles | ✓ | ✓ |
| Save Graphs as Color MetaFiles | ✓ | ✓ |
| Save Graphs as B&W MetaFiles | ✓ | ✓ |
| Save Graph as BitMap | ✓ | ✓ |
| Copy Graph to Clipboard as MetaFile | ✓ | ✓ |
| Copy Graph to Clipboard as Bitmap | ✓ | ✓ |
| Resize Graphs | ✓ | ✓ |
| Save Graph in Film Wizard Format | ✓ | ✓ |
| Table to Edit Graph Data | ✓ | ✓ |
| Apply User Defined Equation to Data | ✓ | ✓ |
| Miscellaneous | | |
| Specify Design Temperature | - | ✓ |
| Specify Evaluation Temperature | - | ✓ |
| Integrate Evaluation Results | ✓ | ✓ |

| | | |
|--|----|----|
| Price | | |
| Free Technical Support (Months) | 12 | 12 |
| Free Upgrades (Months) | 3 | 12 |
| Optional Maintenance Agreement After First Year (Free Upgrades & Technical Support) | | |

| VB Style Macro Language | | |
|-------------------------------|---|---|
| Full support for modern BASIC | - | ✓ |
| Supports Custom Dialog Boxes | - | ✓ |
| Call Dynamic Link Libraries | - | ✓ |