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THORLABS

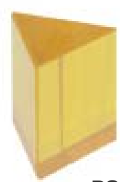
PS864 - May 13, 2016

Item # PS864 was discontinued on May 13, 2016. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

EQUILATERAL DISPERSIVE PRISMS

- **High Refractive Index**
- **Low Abbe V_d Number for Maximum Dispersion**
- **Material: F_2, N-SF11, CaF_2, ZnSe, or Ge**

PS854



PS860

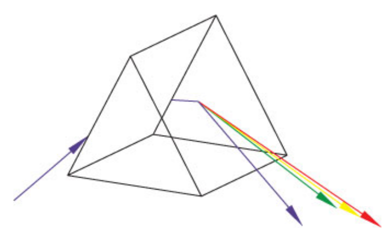
PS856

PS864

Application Idea
PS855 Prism on a KM200B Platform Mount

Hide Overview

OVERVIEW



Our Dispersive Equilateral Prisms, which are fabricated from N-SF11, F2, CaF_2, ZnSe, or Ge, are available in sizes ranging from 10 mm to 50 mm.

These prisms create less stray light than diffraction gratings, thereby eliminating the higher order problems typically associated with gratings.

Dispersive prisms are typically used at the minimum angle of deviation. This is the angle for which the wavelength of interest will travel parallel to the base of the prism, and the angle of incidence is equal to the angle of refraction when measured with respect to the normal of the prism face at the respective interface (see the *Equilateral Tutorial* tab for more information). At the minimum angle of deviation, a maximum clear aperture is achieved and reflective loss of P-polarized light is reduced since the angle of incidence is nearly Brewster's angle. For S-polarization, a custom antireflective coating can be used to minimize surface reflections.

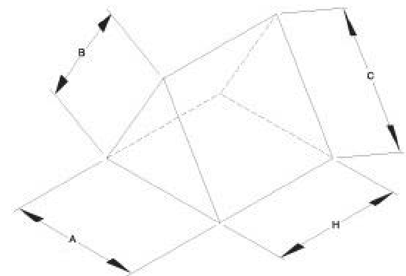
Please refer to the *Prism Guide* tab above for assistance in selecting the appropriate prism for your application, or to view Thorlabs' extensive line of prisms, please click here.

Hide Specs

SPECS

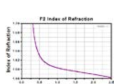
General Specifications					
Material	**F2[a]**	**N-SF11[a]**	**CaF_2[a]**	**ZnSe[a]**	**Germanium[a]**
Clear Aperture	70%				
Surface Quality (Scratch-Dig)	40-20			60-40	
Angular Tolerance	±5 arcmin		±3 arcmin	±10 arcmin	±10 arcmin
Number of Polished Faces	2[b]			3[c]	2[b]

a. Click Link for Detailed Specifications on the Substrate Glass
b. One face and the bases are fine ground.
c. The bases are fine ground.



Item #	A=B=C=H (mm)	Material	Minimum Angle of Deviation	V_d[b]	Surface Flattness @ 633 nm
PS850	10 ± 0.15	F2	47.9° @ 633 nm	36.37	λ/10
PS856	15 ± 0.1				
PS858	20 ± 0.1				
PS852	25 ± 0.1				
PS854	50 ± 0.1				
PS851	10 ± 0.15	N-SF11[a]	65.6° @ 633 nm	25.76	λ/10
PS857	15 ± 0.1				
PS859	20 ± 0.1				
PS853	25 ± 0.1				
PS855	40 ± 0.1				
PS862	10 +0.0/-0.3	CaF_2	31.6° @ 633 nm	95.00	λ/2
PS863	25 +0.0/-0.3				
PS860	10 +0.0/-0.3	ZnSe	N/A	N/A	λ/2
PS861	25 +0.0/-0.3				
PS864	10 +0.0/-0.3	Ge	N/A	N/A	λ/2

- N-SF11 stains easily. Clean off fingerprints quickly.
- The Abbe number, V_d, is calculated by: $V_d = (n_d - 1) / (n_F - n_C)$, where n_d, n_F, and n_C are the indices of refraction for the helium D-line (587.6 nm), the hydrogen F-line (486.1 nm), and the hydrogen C-line (656.3 nm). A lower Abbe number indicates more dispersion.



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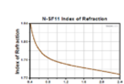

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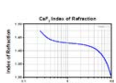

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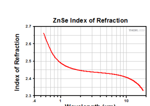

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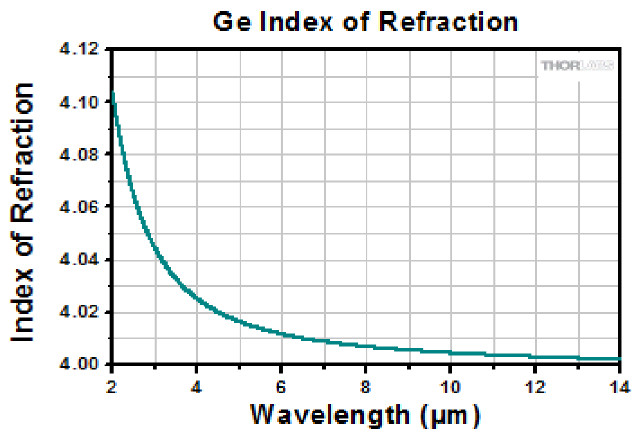


Click to Enlarge

Click Here to Download Index of Refraction Data

Hide Materials

MATERIALS

N-SF11 and F2

Both N-SF11 and F2 both offer excellent performance in the visible range. When compared to each other, F2, which is a flint glass, has superior chemical resistance and better transmission than N-SF11. For instance, at 420 nm the theoretical internal transmittance of a 10 mm thick piece of F2 is 0.995, whereas for the same thickness of N-SF11, the internal transmittance is 0.910. If the glass is increased to a thickness of 25 mm, these internal transmission values decrease to 0.987 and 0.790, respectively. With high indices of refraction and low Abbe Numbers V_d, both N-SF11 and F2 provide maximum dispersive power.

Material	Wavelength Range	Index of Refraction	Abbe Number
F2	385 nm - 2 µm	1.617 @ 633 nm	36.37
N-SF11	420 nm - 2.3 µm	1.779 @ 633 nm	25.76
CaF_2	180 nm - 8 µm	1.433 @ 633 nm	95.00
ZnSe	600 nm - 16 µm	2.403 @ 10.6 µm	N/A[a]
Germanium	2 - 16 µm	4.004 @ 10.6 µm	N/A[a]

- Germanium and ZnSe are opaque at some or all visible wavelengths, and thus the Abbe number is undefined.

Calcium Fluoride

CaF_2 is commonly used for applications requiring high transmission in the infrared and ultraviolet spectral ranges. The material exhibits a low refractive index, varying from 1.35 to 1.51 within its usage range of 180 nm to 8.0 µm, as well as an extremely high laser damage threshold. Calcium fluoride is also fairly chemically inert and offers superior hardness compared to its barium fluoride, magnesium fluoride, and lithium fluoride cousins.

Zine Selenide

Zinc Selenide is ideal fo use in the 600 nm 16 µm range. It features low absorption (including in the red visible wavelength range) and high resistance to thermal shock. ZnSe is ideal for use in CO_2 laser systems operating at 10.6 µm, including those with HeNe alignment lasers. Please note that, due to its low hardness, care should be taken when handling ZnSe optics.

Germanium

Due to its broad transmission range (2 - 16 µm) and opacity in the visible portion of the spectrum, Germanium is well suited for IR applications. Germanium has a refractive index of over 4 in the 2 - 16 µm range (see the *Index of Refraction* tab for details). It is also inert to air, water, alkalis, and acids (except nitric acid). Germanium's transmission properties are highly temperature sensitive. Germanium is nearly opaque at 100 °C and completely non-transmissive at 200 °C.

INDEX OF REFRACTION

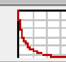
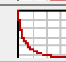
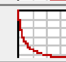
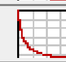
The index of refraction of various materials can be calculated via Sellmeier equations. Each material is empirically assigned a set of coefficients, through which the index of refraction can be calculated at any wavelength[a].

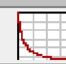
Sellmeier Equation 1:

$$n^2 - 1 = \frac{K_1\lambda^2}{\lambda^2 - L_1} + \frac{K_2\lambda^2}{\lambda^2 - L_2} + \frac{K_3\lambda^2}{\lambda^2 - L_3}$$

Sellmeier Equation 4:

$$n^2 = A + \frac{B\lambda^2}{\lambda^2 - C} + \frac{D\lambda^2}{\lambda^2 - E}$$

Material[b]	K1	L1	K2	L2	K3	L3	λ_{min}[a] (µm)	λ_{max}[a] (µm)	Plot
F2	1.345	9.977×10^{-3}	2.091×10^{-1}	4.705×10^{-2}	9.374×10^{-1}	1.119×10^{2}	0.32	2.5	
N-SF11	1.737	1.319×10^{-2}	3.137×10^{-1}	6.231×10^{-2}	1.899	1.552×10^{2}	0.37	2.5	
CaF_2	5.676×10^{-1}	2.526×10^{-3}	4.711×10^{-1}	1.008×10^{-2}	3.848	1.201×10^{3}	0.23	9.7	
ZnSe	4.298	3.689×10^{-2}	6.278×10^{-1}	1.435×10^{-1}	2.896	2.208×10^{3}	0.55	18.0	

Material[b]	A	B	C	D	E	λ_{min}[a] (µm)	λ_{max}[a] (µm)	Plot
Ge	9.281	6.730	4.418×10^{-1}	2.131×10^{-1}	3.870×10^{3}	2.0	15.0	

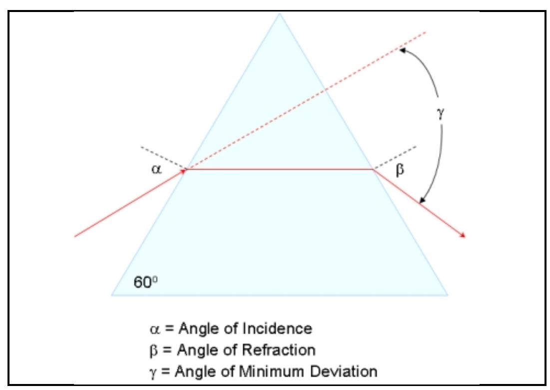
- The Sellmeier equation is only accurate within the wavelength range specified by λ_{min} and λ_{max}.
- F2, N-SF11, CaF_2, and ZnSe indices should be calculated using Sellmeier equation1, while the index of Ge should be calculated using sellmeier equation 4.

Click Here to Download Index of Refraction Data

Hide Equilateral Tutorial

EQUILATERAL TUTORIAL

Angle of Minimum Deviation Through a Prism



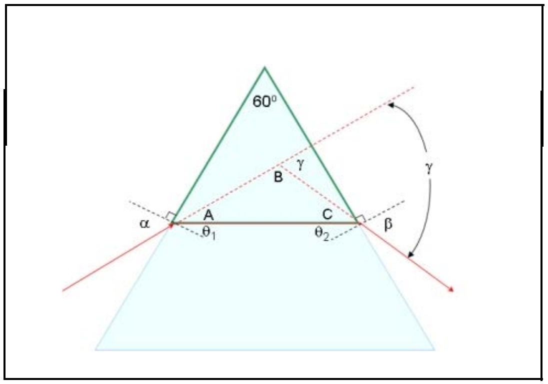
If one were to use ray tracing techniques to determine the light propagation path due to the presence of the equilateral prism shown to the right, you would find that for most incidence angles, the angle of deviation of the transmitted ray (denoted by γ in the figure to the right) is roughly the same, regardless of the angle of incidence α considered. However, although the angle of deviation is largely unchanged, there is a minimum value that is obtainable. This angle is known as the minimum angle of deviation; it occurs when the light ray passing through the prism is parallel to the prism's base (as shown to the right), and therefore, α = β (i.e., the angle of the light ray entering the prism is identical to that of the light ray exiting the prism).

To illustrate the relationship between the incident, exit, and deviation angles in the triangle to the right, consider the equilateral triangle shown below, which is identical to the one shown to the right but has several more angles labeled. Using the geometric relationships that exist for vertical angles, it becomes apparent that $A = \alpha - \theta_1$ and $C = \beta - \theta_2$. Since the angles A, B, and C define a triangle, we know that A + B + C = 180°, and thus, B = 180° - (A + C) = 180° - [($\alpha - \theta_1$) + ($\beta - \theta_2$)]. Finally, B + γ = 180°, so γ = 180° - B = [($\alpha - \theta_1$) + ($\beta - \theta_2$)].

Now, consider the triangle outlined in green in the figure below. Here, $(90 - \theta_1) + (90 - \theta_2) + 60° = 180°$. Thus, $\theta_1 + \theta_2 = 60°$. Substituting this relationship into the end result derived in the previous paragraph, yields $\gamma = \alpha + \beta - (\theta_1 + \theta_2) = \alpha + \beta - 60°$.

For the angle of minimum deviation, α = β, so there is a simple relationship between the angle of incidence and the angle of minimum deviation:

$$\gamma = \alpha + \beta - 60° = 2\alpha - 60°$$



By applying Snell's Law to the interfaces of prism and using a little calculus, a general equation for the relationship between the index of refraction of the equilateral prism *n* and the angle of minimum deviation γ can be obtained:

$$n = \frac{\sin\left[\frac{\gamma + 60^o}{2}\right]}{\sin 30^o}$$

At the design wavelength (633 nm), the indices of refraction for N-SF11 and F2 are 1.779 and 1.617, respectively. Solving for γ in the equation above yields 65.6° for N-SF11 and 47.9° for F2.

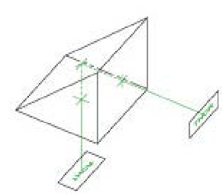
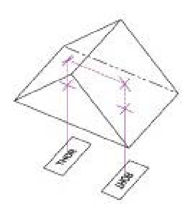
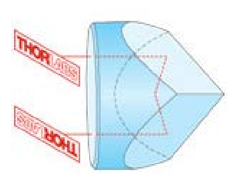
Hide Prism Guide

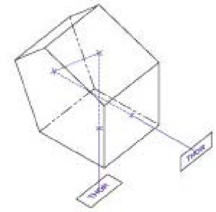
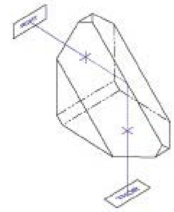
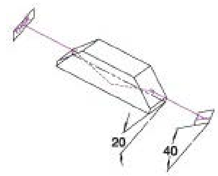
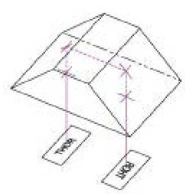
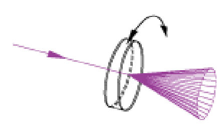
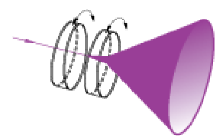
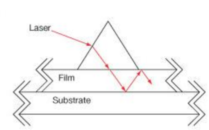
PRISM GUIDE

Selection Guide for Prisms

Thorlabs offers a wide variety of prisms, which can be used to reflect, invert, rotate, disperse, steer, and collimate light. For prisms and substrates not listed below, please contact Tech Support.

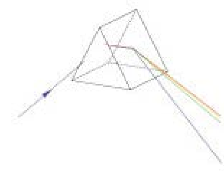
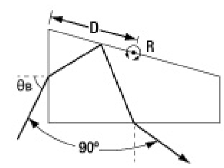
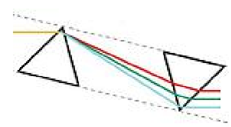
Beam Steering Prisms

Prism	Material	Deviation	Invert	Reverse or Rotate	Illustration	Applications
Right Angle Prisms	N-BK7, UV Fused Silica, Germanium, Calcium Fluoride, or Zinc Selenide	90°	90°	No		90° reflector, independent of entrance beam angle. Used in optical systems such as telescopes and periscopes.
		180°	180°	No		180° reflector, independent of entrance beam angle. Acts as a non-reversing mirror and can be used in binocular configurations.
Retroreflectors	N-BK7	180°	180°	No		180° reflector, independent of entrance beam angle. Beam alignment and beam delivery. Substitute for mirror in applications where orientation is difficult to control.
Penta Prisms and Mounted Penta	N-BK7	90°	No	No		90° reflector, without inversion or reversal of the beam profile. Can be used for alignment and

Prisms						optical tooling.
Roof Prisms	N-BK7	90°	90°	180° Rotation		90° reflector, inverted and rotated (deflected left to right and top to bottom). Can be used for alignment and optical tooling.
Unmounted Dove Prisms and Mounted Dove Prisms	N-BK7	No	180°	2x Prism Rotation		Dove prisms may invert, reverse, or rotate an image based on which face the light is incident on. Prism in a beam rotator orientation.
		180°	180°	No		Prism acts as a non-reversing mirror. Same properties as a retro-reflector or right angle (180° orientation) prism in an optical setup.
Wedge Prisms	N-BK7	Models Available from 2° to 10°	No	No		Beam steering applications. By rotating one wedged prism, light can be steered to trace the circle defined by 2 times the specified deviation angle.
			No	No		Variable beam steering applications. When both wedges are rotated, the beam can be moved anywhere within the circle defined by 4 times the specified deviation angle.
Coupling Prisms	Rutile (TiO_2) or GGG	Variable[a]	No	No		High index of refraction substrate used to couple light into films. Rutile used for $n_{film} > 1.8$ GGG used for $n_{film} < 1.8$

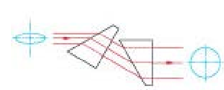
- Depends on angle of incidence and index of refraction

Dispersive Prisms

Prism	Material	Deviation	Invert	Reverse or Rotate	Illustration	Applications
Equilateral Prisms	F2, N-SF11, Germanium, Calcium Fluoride, or Zinc Selenide	Variable[a]	No	No		Dispersion prisms are a substitute for diffraction gratings. Use to separate white light into visible spectrum.
Pellin Broca Prisms	N-BK7, UV Fused Silica, or Calcium Fluoride	90°	90°	No		Ideal for wavelength separation of a beam of light, output at 90°. Used to separate harmonics of a laser or compensate for group velocity dispersion.
Dispersion Compensating Prism Pairs	Fused Silica, Calcium Fluoride, SF10, or N-SF14	Variable Vertical Offset	No	No		Compensate for pulse broadening effects in ultrafast laser systems. Can be used as an optical filter, for wavelength tuning, or dispersion compensation.

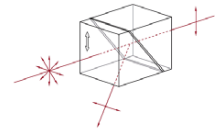
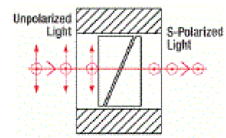
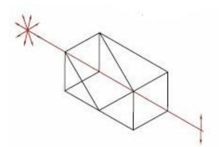
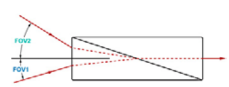
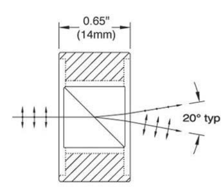
a. Depends on angle of incidence and index of refraction

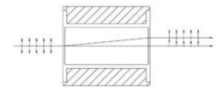
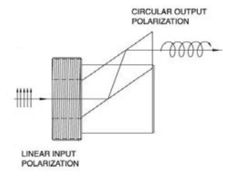
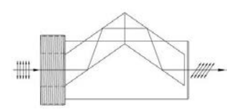
Beam Manipulating Prisms

Prism	Material	Deviation	Invert	Reverse or Rotate	Illustration	Applications
Anamorphic Prism Pairs	N-KZFS8 or N-SF11	Variable Vertical Offset	No	No		Variable magnification along one axis. Collimating elliptical beams (e.g., laser diodes) Converts an elliptical beam into a circular beam by magnifying or contracting the input beam in one axis.

Polarization Altering Prisms

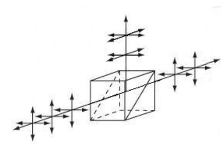
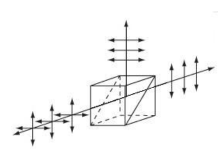
Prism	Material	Deviation	Invert	Reverse or Rotate	Illustration	Applications
Glan-Taylor, Glan-Laser, and α-BBO	Glan-Taylor: Calcite Glan-Laser:	*p*-pol. - 0° a	No	No		Double prism configuration and birefringent calcite produce extremely pure linearly polarized light. Total Internal Reflection of *s*-

Glan-Laser Polarizers	α- BBO or Calcite	*s*-pol. - 112°				pol. at the gap between the prism while *p*-pol. is transmitted.
Rutile Polarizers	Rutile (TiO_2)	*s*-pol. - 0° *p*-pol. absorbed by housing	No	No		Double prism configuration and birefringent rutile (TiO_2) produce extremely pure linearly polarized light. Total Internal Reflection of *p*-pol. at the gap between the prisms while *s*-pol. is transmitted.
Double Glan-Taylor Polarizers	Calcite	*p*-pol. - 0° *s*-pol. absorbed by housing	No	No		Triple prism configuration and birefringent calcite produce maximum polarized field over a large half angle. Total Internal Reflection of *s*-pol. at the gap between the prism while *p*-pol. is transmitted.
Glan Thompson Polarizers	Calcite	*p*-pol. - 0° *s*-pol. absorbed by housing	No	No		Double prism configuration and birefringent calcite produce a polarizer with the widest field of view while maintaining a high extinction ratio. Total Internal Reflection of *s*-pol. at the gap between the prism while *p*-pol. is transmitted.
Wollaston Prisms and Wollaston Polarizers	Calcite	Symmetric *p*-pol. and *s*-pol. deviation angle	No	No		Double prism configuration and birefringent calcite produce the widest deviation angle of beam displacing polarizers. *s*-pol. and *p*-pol. deviate symmetrically from the prism. Wollaston prisms are used in spectrometers and polarization analyzers.
Beam Displacing		2.7 or 4.0 mm				Single prism configuration and birefringent calcite separate an input beam into two orthogonally polarized output beams.

Prisms	Calcite	Beam Displacement	No	No		*s*-pol. and *p*-pol. are displaced by 2.7 or 4.0 mm. Beam displacing prisms can be used as polarizing beamsplitters where 90° separation is not possible.
Fresnel Rhomb Retarders	N-BK7	Linear to circularly polarization Vertical Offset	No	No		λ/4 Fresnel Rhomb Retarder turns a linear input into circularly polarized output. Uniform λ/4 retardance over a wider wavelength range compared to birefringent wave plates.
		Rotates linearly polarized light 90°	No	No		λ/2 Fresnel Rhomb Retarder rotates linearly polarized light 90°. Uniform λ/2 retardance over a wider wavelength range compared to birefringent wave plates.

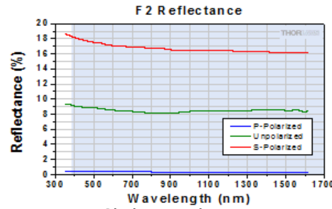
- s-polarized light is not pure and contains some p-polarized reflections.

Beamsplitter Prisms

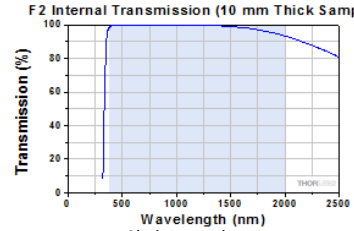
Prism	Material	Deviation	Invert	Reverse or Rotate	Illustration	Applications
Beamsplitter Cubes	N-BK7	50:50 splitting ratio, 0° and 90° *s*- and *p*- pol. within 10% of each other	No	No		Double prism configuration and dielectric coating provide 50:50 beamsplitting nearly independent of polarization. Non-polarizing beamsplitter over the specified wavelength range.
Polarizing Beamsplitter Cubes	N-BK7, UV Fused Silica, or N-SF1	*p*-pol. - 0° *s*-pol. - 90°	No	No		Double prism configuration and dielectric coating transmit *p*-pol. light and reflect *s*-pol. light. For highest polarization use the transmitted beam.

[Hide F2 Equilateral Dispersive Prisms (385 nm - 2 µm)]

F2 Equilateral Dispersive Prisms (385 nm - 2 µm)



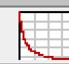
Click to Enlarge



Click to Enlarge
Download an Excel File with Raw Transmission Data
Transmission data is for a 10 mm thick sample.

F2 is a flint glass that offers excellent performance in the visible and NIR spectral range. It offers a high refractive index and low Abbe number, making it excellent for use in an equilateral dispersive prism. Compared to N-SF11, it offers superior chemical resistance and slightly higher transmission.

Polarization Effects
For p-polarized light (blue line) incident on a dispersing prism at the angle of least deviation, the graph to the right shows that only a small percentage of the p-polarized light is reflected at the surface. Thus, for this polarization, the transmission through a prism fabricated from F2 will be excellent even though there is no AR coating on the surface.

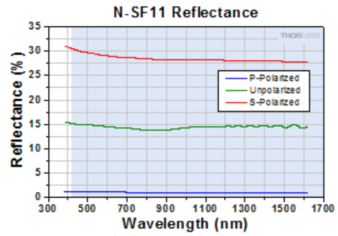
Material	Minimum Angle of Deviation	V_d[b]	Surface Flatness @ 633 nm	Clear Aperture	Surface Quality	Angular Tolerance	Number of Polished Faces	Index of Refraction Plot
F2[a]	47.9° @ 633 nm	36.37	λ/10	70%	40-20 Scratch-Dig	±5 arcmin	2[c]	

a. Click Link for Detailed Specifications on the Substrate Glass
b. The Abbe number, V_d, is calculated by: $V_d = (n_d - 1) / (n_F - n_C)$, where n_d, n_F, and n_C are the indices of refraction for the helium D-line (587.6 nm), the hydrogen F-line (486.1 nm), and the hydrogen C-line (656.3 nm). A lower Abbe number indicates more dispersion.
c. One face and the bases are fine ground.

Part Number	Description	Price	Availability
PS850	**F2 Equilateral Dispersive Prism, 10 mm**	**$84.70**	**Today**
PS856	**F2 Equilateral Dispersive Prism, 15 mm**	**$91.40**	**Today**
PS858	**F2 Equilateral Dispersive Prism, 20 mm**	**$98.00**	**Today**
PS852	**F2 Equilateral Dispersive Prism, 25 mm**	**$109.00**	**Today**
PS854	**F2 Equilateral Dispersive Prism, 50 mm**	**$221.00**	**Today**

N-SF11 Equilateral Dispersive Prisms (420 nm - 2.3 µm)

N-SF11 is a flint glass that offers excellent performance in the visible and NIR spectral range. It offers a high refractive index and low Abbe number, making it excellent for use in an equilateral dispersive prism.



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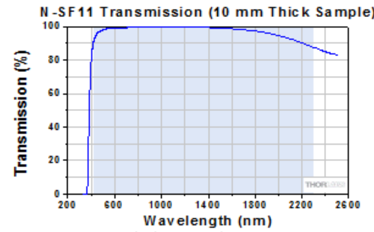


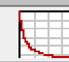
Click to Enlarge

Download an Excel File with Raw Transmission Data

Transmission data is for a 10 mm thick sample.

Polarization Effects

For P-Polarized light (blue line) incident on a dispersing prism at the angle of least deviation, the graph to the right shows that only a small percentage of the p-polarized light is reflected at the surface. Thus, for this polarization, the transmission through a prism fabricated from N-SF11, a RoHS-compliant version of SF11, will be excellent even though there is no AR coating on the surface.

Material	Minimum Angle of Deviation	V_d [b]	Surface Flatness @ 633 nm	Clear Aperture	Surface Quality	Angular Tolerance	Number of Polished Faces	Index of Refraction Plot
N-SF11[a]	65.5° @ 633 nm	24.76	λ/10	70%	40-20 Scratch-Dig	±5 arcmin	2[c]	

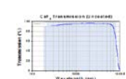
a. N-SF11 stains easily. Clean off fingerprints quickly. Click the link for detailed specifications on the substrate glass.
b. The Abbe number, V_d, is calculated by: $V_d = (n_d - 1) / (n_F - n_C)$, where n_d, n_F, and n_C are the indices of refraction for the helium D-line (587.6 nm), the hydrogen F-line (486.1 nm), and the hydrogen C-line (656.3 nm). A lower Abbe number indicates more dispersion.
c. One face and the bases are fine ground.

Part Number	Description	Price	Availability
PS851	N-SF11 Equilateral Dispersive Prism, 10 mm	$77.30	Today
PS857	N-SF11 Equilateral Dispersive Prism, 15 mm	$77.30	Lead Time
PS859	N-SF11 Equilateral Dispersive Prism, 20 mm	$82.40	Lead Time
PS853	N-SF11 Equilateral Dispersive Prism, 25 mm	$82.40	Today
PS855	N-SF11 Equilateral Dispersive Prism, 40 mm	$201.00	Today

Hide CaF_2 Equilateral Dispersive Prisms (180 nm - 8 µm)

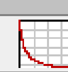
CaF_2 Equilateral Dispersive Prisms (180 nm - 8 µm)

CaF_2 is commonly used for applications requiring high transmission in the infrared and ultraviolet spectral ranges. The material exhibits a low refractive index, varying from 1.35 to 1.51 within its usage range of 180 nm to 8.0 µm, as well as an extremely high laser damage threshold. Calcium fluoride is also fairly chemically inert and offers superior hardness compared to its barium fluoride, magnesium fluoride, and lithium fluoride cousins.



Click to Enlarge

Note: Transmission data is for two 25 mm right-angle prisms contacted into a cube. Click here to download substrate transmission data.

Material	Minimum Angle of Deviation	V_d [b]	Surface Flatness @ 633 nm	Clear Aperture	Surface Quality	Angular Tolerance	Number of Polished Faces	Index of Refraction Plot
CaF_2 [a]	31.6° @ 633 nm	95.00	λ/2	70%	40-20 Scratch-Dig	±3 arcmin	2[c]	

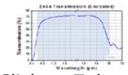
a. Click Link for Detailed Specifications on the Substrate Glass
b. The Abbe number, V_d, is calculated by: $V_d = (n_d - 1) / (n_F - n_C)$, where n_d, n_F, and n_C are the indices of refraction for the helium D-line (587.6 nm), the hydrogen F-line (486.1 nm), and the hydrogen C-line (656.3 nm). A lower Abbe number indicates more dispersion.
c. One face and the bases are fine ground.

Part Number	Description	Price	Availability
PS862	CaF_2 Equilateral Dispersive Prism, Uncoated, 10 mm	$321.00	Today
PS863	CaF_2 Equilateral Dispersive Prism, Uncoated, 25 mm	$500.00	Today

Hide ZnSe Equilateral Dispersive Prisms (600 nm - 16 µm)

ZnSe Equilateral Dispersive Prisms (600 nm - 16 µm)

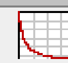
Zinc Selenide is ideal for use in the 600 nm 16 µm range. It features low absorption (including in the red visible wavelength range) and high resistance to thermal shock. ZnSe is ideal for use in CO_2 laser systems operating at 10.6 µm, including those with HeNe alignment lasers.


Click to Enlarge

When handling optics, one should always wear gloves. This is especially true when working with zinc selenide, as it is a hazardous material. For your safety, please follow all proper precautions, including wearing gloves when handling these prisms and thoroughly washing your hands afterward. Due to the low hardness of ZnSe, additional care should be taken to not damage these prisms. Click here to download a pdf of the MSDS for ZnSe.

Thorlabs will accept all ZnSe prisms back for proper disposal. Please contact Tech Support to make arrangements for this service.

Note: Transmission data is for two 25 mm right-angle prisms contacted into a cube. Click here to download substrate transmission data.

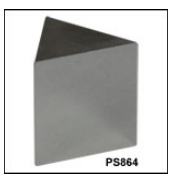
Material	Surface Flatness @ 633 nm	Clear Aperture	Surface Quality	Angular Tolerance	Number of Polished Faces	Index of Refraction Plot
ZnSe[a]	λ/2	70%	60-40 Scratch-Dig	±10 arcmin	3[b]	

a. Click Link for Detailed Specifications on the Substrate Glass
b. The bases are fine ground.

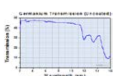
Part Number	Description	Price	Availability
PS860	**ZnSe Equilateral Dispersive Prism, Uncoated, 10 mm**	**$505.00**	**Today**
PS861	**ZnSe Equilateral Dispersive Prism, Uncoated, 25 mm**	**$927.00**	**Today**

Hide Ge Equilateral Dispersive Prism (2 - 16 µm)

Ge Equilateral Dispersive Prism (2 - 16 µm)

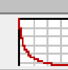


Due to its broad transmission range (2 - 16 µm) and opacity in the visible portion of the spectrum, Germanium is well suited for IR applications. Germanium has a refractive index of over 4 in the 2 - 16 µm range (see the *Index of Refraction* tab for details). It is also inert to air, water, alkalis, and acids (except nitric acid). Germanium's transmission properties are highly temperature sensitive. Germanium is nearly opaque at 100 °C and completely non-transmissive at 200 °C.


Click to Enlarge

When handling optics, one should always wear gloves. This is especially true when working with germanium, as dust from the material is hazardous. For your safety, please follow all proper precautions, including wearing gloves when handling these prisms and thoroughly washing your hands afterward.

Note: Transmission data is for two 25 mm right-angle prisms contacted into a cube. Click here to download substrate transmission data.

Material	Surface Flatness @ 633 nm	Clear Aperture	Surface Quality	Angular Tolerance	Number of Polished Faces	Index of Refraction Plot
Ge[a]	λ/2	70%	60-40	±10 arcmin	2[b]	

a. Click Link for Detailed Specifications on the Substrate Glass
b. One face and the bases are fine ground.

Part Number	Description	Price	Availability
PS864	**Ge Equilateral Dispersive Prism, Uncoated, 25 mm**	**$737.00**	**Lead Time**

Visit the *Equilateral Dispersive Prisms* page for pricing and availability information:
https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=148