

Protective Domes for Pyranometers

Pyranometers are used to measure solar radiation incident on a Earth surface. The devices are specially designed to measure the density of solar radiation flux (W/m^2) from the entire upper hemisphere.



To protect an absorbing sensor from wind, precipitation, and long wavelength radiation, special glass domes are used. TYDEX produces protective domes from different types of quarts and glass without any coatings. Typical diameters range from 30 to 50 mm but parts with sizes up to 100 mm can be produced also.

Protective domes are custom made in compliance with customers' demands.

Specification:

Type of a part	Dome
Material	glass / quarts
Diameter, mm	32 (+0/-0.2)
Central thickness, mm	3.7 (± 0.2)
Surfaces quality, scr/dig	80/50

Pyranometers with TYDEX protection domes are used in meteorology, climatology, environment monitoring, and energy savings researches. Instruments are suited for the incoming solar radiation measurement in 0.3-3 μm range. They fully comply with ISO 9060 standards, and meet the requirements defined by the World Meteorological Organization (WMO).



Filters for Pyrgeometers

A pyrgeometer is a device for measuring the effective radiation of the earth's surface, i.e. the difference between the natural radiation of the Earth's surface and the counter radiation of the atmosphere. They operate in the mid- and far-infrared ranges of the spectrum.



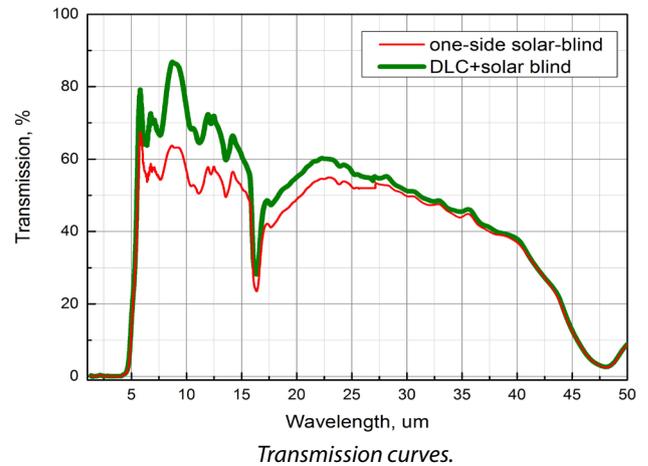
To cut off the short wavelength part of a spectrum ($<4.5 \mu m$) a filter element is used. TYDEX produces the filters from FZ-Si as plano-plano windows or meniscus lenses. The internal side is coated with a solar-blind coating, which transmission parameters may vary in a range from 4.5 to 45 μm . The filter's outside surface is protected with a diamond-like coating (DLC) from mechanical damage and negative environment impact including high humidity.

Pyrgeometers based on TYDEX filters were successfully tested and certified in the Davos Physical Meteorological Observatory (Switzerland).

Specification:

Type of a part	plane-plane window / meniscus lens
Material	FZ-Si
Diameter, mm	31.8 (+0/-0.2)
Thickness, mm	1.0 (± 0.1)

Surfaces quality, scr/dig	40/20
Coatings	DLC, solar-blind



Domes with a Neutral Density Filter

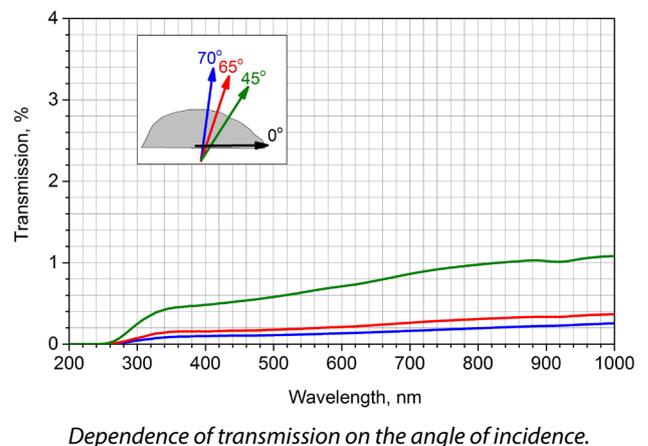
For proper working of a sky camera the solar radiation should be correctly dosed. Otherwise superfluous heating of the covering dome may increase humidity which result in water drops on the inner surface of the dome. To solve this task TYDEX offers special coating which allows to attenuate the incoming solar flux - neutral density filter.



This coating makes it possible to reach a transmittance of around 1% (OD 2.0) across the visible spectrum.

Specification:

Type of a part	Dome
Material	glass / quartz
Diameter, mm	76 (+0/-0.2)
Central thickness, mm	3.0 (± 0.2)
Surfaces quality, scr/dig	80/50
Coatings	neutral density filter





Quartz Diffuser

Optical diffusers are used to control the diffuse area of illumination by evenly diffusing the radiation as it passes through the diffuser. These diffusers can be used to achieve a near Lambertian distribution. The level of diffusion causes a large amount of scattering loss.



Specification:

Type of a part	plane-plane window / meniscus lens
Material	special quartz
Diameter, mm	19 (+0/-0.1)
Central thickness, mm	1.5 (± 0.1)
Surfaces quality, scr/dig	80/50